

SHIFT INTO GEAR[®]

A BICYCLING ADVOCACY RESOURCE



880
cities

PLAYCORE
Building communities through play & recreation™

Along with the input of biking advocates, professionals, and champions in the field across a variety of communities, the following list of experts played a critical role in the development of this collaborative resource. Undoubtedly, they are to be applauded for their knowledge and expertise, while being appreciated for their passionate promotion of initiatives that stimulate bicycling as a solution for well-being, health, transportation, and community connectivity.

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The purpose of Shift into Gear: A Bicycling Advocacy Resource is to provide an educational overview and to raise awareness about advocacy, infrastructure, and funding of bicycling initiatives. This guidebook is not to be considered an all-inclusive resource as we understand the fields of bicycling and walking advance at a rapid pace. Ultimately, we hope this resource is a starting point for communities to advocate for bicycling and walking, to provide general information, to highlight success stories, and to encourage you to build communities with people in mind. By highlighting what other communities have done, we hope to inspire new bicycling-related initiatives across every community.

Please refer to the manufacturer specifications and safety warnings which are supplied with bicycling equipment, and observe normal safety inspections. Safety goes beyond these comments, requires common sense, and is specific to the bicycling systems involved. While our intent is to provide general resources to encourage the development of new infrastructures, awareness through advocacy, and funding, the authors, advisors, program directors, and contributors disclaim any liability based on information contained in this publication. Site owners are responsible for inspection, maintenance, repair, and management of site-specific elements. PlayCore and its brands provide these comments as a public service in the interest of building communities through play and recreation, while advising of the restricted context in which it is given.

Cover photo courtesy of cbsminnesota.com

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FOREWORD

BY GIL PENALOSA

People riding bicycles - a symptom of an inclusive, happy and sustainable city

Two words that symbolize my earliest memories of riding a bicycle are freedom and happiness. Freedom as I was able to go much farther and faster than I had been able to by myself, and happiness as it provided an overall state of well-being, true joy. It was love at first ride, for always.

In the last nine years I've had the privilege to travel and work in over 200 cities across six continents, advising cities on how to improve sustainable mobility (walking, bicycling, and public transit) as well as parks and public spaces. One of the many things I have learned during this time is that the way we have designed our cities, in almost all parts of the world, has denied so many the pure joy, exhilaration, and freedom one can experience on a bicycle.

The reality is that in the last 50 years we have been planning our cities based much more on the mobility of cars than on the happiness of people. When you look at any city from the air, you can see that streets account for the majority of public space. Streets belong to all citizens regardless of age, gender, or social status. Focusing just on the movement of cars is not a very democratic use of such valuable space.

Creating great cities and communities for bicycle riding is a key way of redistributing this highly valuable space in a more equitable way. Investing in active transportation is not just something "nice to do," it is about building more inclusive communities. Walking and bicycling are the only means of mobility for all children and youth and for many older adults. Even in the wealthiest community, at least one third of the population does not drive. The opportunity to move safely around our communities should not be limited to only those with access to a car.

Planning our cities in a way that encourages people to ride bicycles just makes sense. The research is clear, bicycling is a key ingredient to creating sustainable cities that promote healthy lifestyles and economic vitality. There are



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many great examples of cities around the world that have embraced the bicycle as a truly mainstream form of urban transportation; in North America we have a long way to go. The average number of trips made on a bicycle is less than 3%.

When properly designed, planned, and encouraged, bicycling can change our modern transportation systems in a very substantive way. In Groningen, Netherlands 55% of all trips are done on a bicycle in Copenhagen, Denmark 45%; in Malmo, Sweden, it's 30% and there are many more cities, particularly in Northern Europe, that have high rates of bicycling. These cities have similar income and education levels to cities in America, and also have cold winters, warm summers, and much rain throughout the year.

I'm always told that I cannot compare cities in the United States with cities in Europe. "Europe has always been that way" is a common myth I have encountered. The reality is that many cities in Europe experienced a "car invasion" in the 1950s the same as many cities across North America.

We can learn from their successes. Creating great cities for cycling is not rocket science. The cities that have the highest rates of bicycling have made a conscious effort to rebuild their infrastructure to support bicycling for people of all ages and all abilities. When designed properly, bicycling is not something for just 30-50 year old men in Spandex, but for everyone from the kindergartner to the business woman to the grandparent.

So, how do we rebuild our communities to encourage bicycling as a mainstream form of transportation for a diversity of people? These are the "must haves":

- **Create a minimum grid of protected bikeways on arterial roads.**

I have seen so many cities invest in a bike lane on one street, and then two years later they do another bike lane on another street on the other side of the city. The fact is, this does not work and the city leaders give up on the process because they "do not have a bicycle culture." If they truly want to

encourage bicycling, cities have to create a bikeway system that is safe, complete, and connects places of origins to places of destination, building a minimum grid in the same way that the city has a power grid, water grid, and streets for cars grid. Bike lanes that are not protected from motor vehicles simply do not significantly increase ridership. Think of an 8 year old child and an 80 year old person whom you love ... would you tell them to use the bikeway? If you would, it's safe enough; if you would not, then it's not safe enough and we have to do better.

- **Lower speeds on neighborhood/residential streets to 20mph or less.**

This complements the minimum grid on arterials by creating safer streets for everyone, especially people walking and riding bicycles. If hit by a car traveling at 20mph (30kph) or less you have a 95% chance of survival. The chance of survival drops to 20% with a car traveling at 35mph (50kph).

There are also many "nice to have" elements that cities can and should invest in such as high-quality bicycle parking, bike share programs, organized rides, events, and many more. But, if you really want to seriously promote the use of the bicycle for people of all ages and all abilities, you need the "must haves" first.

The wonderful "bonus" of having many more people riding bicycles to their places of destination is that we'll end up with vibrant cities and healthier communities where people will live happier, regardless of their age, gender, socioeconomic, or ethnic background.

MAKING THE CASE FOR BICYCLING

Prior to the mid-1900s and the proliferation of personal motorized vehicles, seldom could you read or hear someone “making the case” for bicycling. Bicycling was just a way of getting around that made good practical sense. Fast forward to today, as we deal with the challenges posed by an overwhelming car-oriented urban planning paradigm, there has been a re-emergence of the bicycle as a form of healthy, sustainable, and economical transportation.

Today we have compelling research that highlights the many benefits any community, large or small, can enjoy with a reinvestment in bicycling for an inclusive, happy, and sustainable city.

Photo courtesy of Walk Sacramento / Alliance for Biking & Walking.



BICYCLING EVOLUTION – A TIMELINE



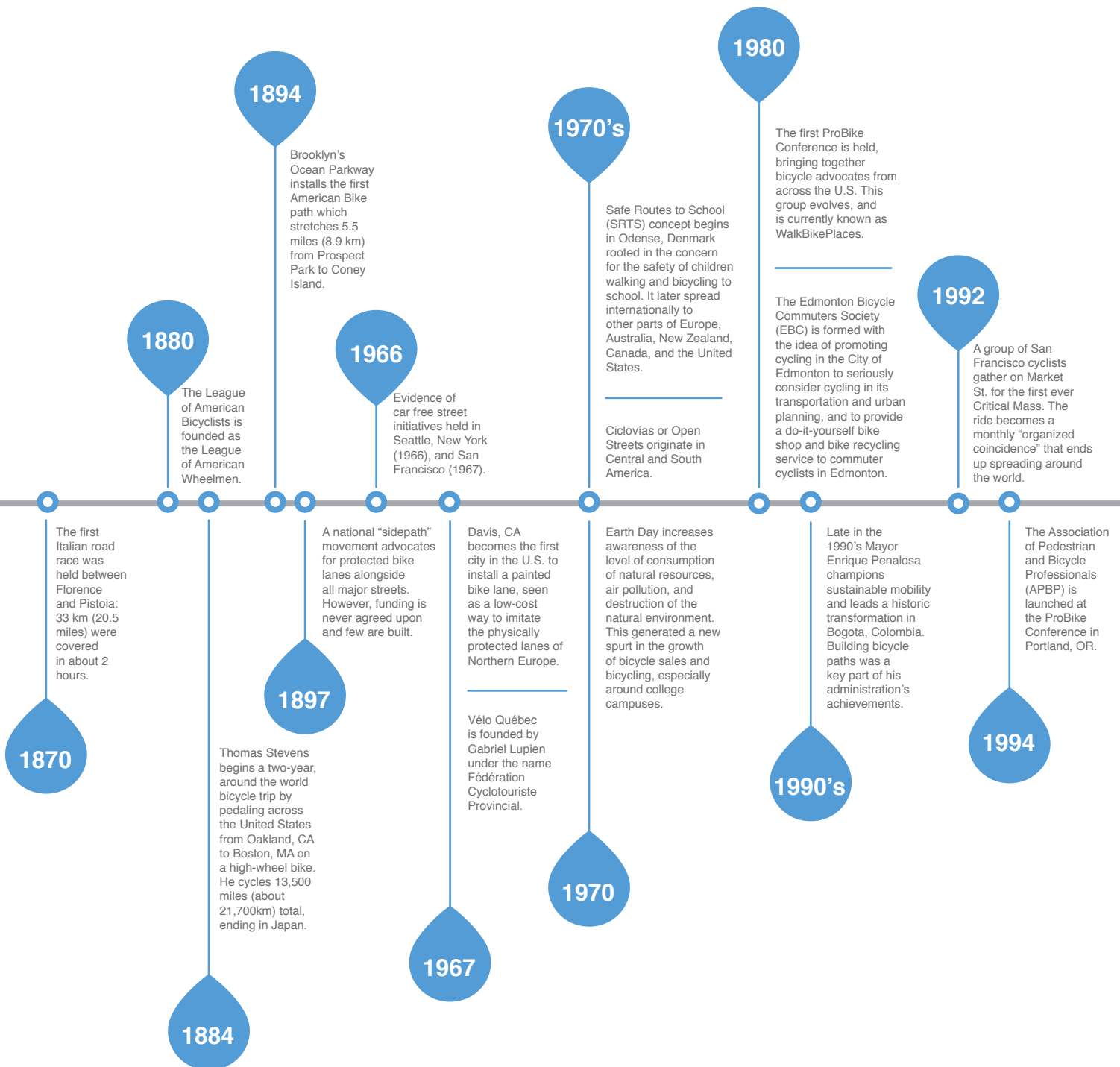
Photos courtesy of Wikimedia Commons (top right, left, and bottom left).

Photography by Dan Burden courtesy of pedbikeimages.org (bottom right).

Bicycling has enjoyed a long and rich history as a mode of transportation, exercise, connectivity, freedom, and outdoor activity. The bicycle has played an important role in society; in fact, most people in the world (just over 50%) have learned to ride one at some point in their life. Everyone who has done so can recall that first moment of being able to stay upright, wind in their face, as they conquered the balance needed to move the bicycle forward. Bicycles coincide with a child's first taste of independence, the ability to travel the neighborhood, get from place to place with friends, and enjoy independence.

Many different people claim credit for inventing the first bicycle. Some credited the Germans with their Draisienne bike dating back to 1817. The French, Scottish, English, and Americans have also weighed in to claim its invention. One thing is clear: this vehicle for human transport (which has two wheels and requires the rider to balance themselves) dates back to the early 19th century and has had an impressive impact across societies ever since.

BICYCLING EVOLUTION – A TIMELINE



1996

The Thunderhead Alliance, now known as the Alliance for Biking & Walking, was established with the explicit goal of linking state and local bike advocacy organizations and leaders.

2000

HUB Cycling (formerly the Vancouver Area Cycling Coalition) is formed with a vision that the cycling community could have a significant impact working together across Metro Vancouver for better roads and connections, protected bike lanes, and better rules, laws and education to make cycling a lot better in the region.

The U.S. Congress funds two SRTS pilot programs through the National Highway Traffic Safety Administration.

2004

Complete Streets is launched as a nationwide movement by the National Complete Street Coalition with the goal to integrate people and places in the planning, design, construction, operation, and maintenance of transportation networks.

2007

8 80 Cities, an internationally recognized non-profit organization that centers its mission on creating a great city for an 8 year old and an 80 year old alike, is founded by Gil Penalosa.

The Federal Highway Administration's (FHWA) creates the Nonmotorized Transportation Pilot Program (NTPP) to demonstrate how bicycling and walking can be part of the transportation solution within selected communities.

2009

SRAM Cycling Fund starts with a \$10 million investment through 2014 to help grow bicycle advocacy.

2012

The Chicago Forward Action Agenda Plan introduces Vision Zero with the aim to reduce transport deaths to zero in 10 years.

2013

The total miles of protected bike lanes in the U.S. reaches 142, up from 80 at the beginning of 2012, and more are on the way.

2015

In Alberta, Canada, Edmonton City Council is the first Canadian city to adopt Vision Zero.

2016

The Alliance for Biking & Walking releases its benchmarking report, with data on biking and walking in all 50 states, plus 52 of the largest cities in the U.S..

The first SRTS program is started in the United States in the Bronx, a borough of New York City. The State of Florida implements a SRTS pilot program.

Vision Zero project is approved in Sweden as a multi-national road traffic safety project that aims to achieve a highway system with no fatalities or serious injuries in road traffic.

2003

The SRTS pilot programs generate interest in the federally funded national program. Advocates convene meetings to discuss SRTS issues and ideas to develop a national program.

2007

Jannette Sadik-Khan becomes New York City's Transportation Commissioner and delivers bold street transformations that are emulated in many cities across the country. During her tenure, nearly 400 miles of bike lanes are installed.

2005

Congress creates the Federal-Aid Safe Routes to School Program through comprehensive transportation legislation.

2012

Green Lane Project, a PeopleForBikes program, starts leading United States cities to speed up the installation of protected bike lanes around the country.

2014

San Francisco District Supervisors (Jane Kim, Norman Yee, and John Avalos) introduce Vision Zero plan for San Francisco, CA.

2017

League of American Bicyclists recognizes Bicycle Friendly Businesses in all 50 states.

PlayCore releases *Shift into Gear* to help assist in the advancement of biking as a form of transportation and enjoyment.

1997

CURRENT TRENDS



Bicycle riding provides great health and economic benefits, which benefits society as a whole. Photography by Doug Gordon courtesy of The Alliance for Biking and Walking.

A More Urban Population

Cities are growing rapidly, with nearly 70% of the world population expected to live in urban centers by 2050. In the United States, urban dwellers account for approximately 62.7% of the population. The bicycle represents an increasingly attractive tool for cities to transport a significant number of people in a healthy, convenient, economical, and sustainable way.

Urban Bicycling is a Key Tool for Sustainable Development

Not only is our population becoming more urban, our cities are facing tremendous challenges. Cities have and will continue to be on the front lines of the effects of climate change. Transportation produces roughly 23% of global carbon dioxide (CO₂) emissions.⁴ Creating safe,

convenient, and accessible infrastructure that supports a real shift toward more sustainable mobility (walking, bicycling, and public transit) will be a key element of any community's sustainable development plans.

Sedentary Lifestyles are a Significant Health Problem in the United States

Obesity has been a growing problem in the United States for the last few decades. While the rate of increase has steadied in the last few years, the rates still remain very high. Adult obesity rates now exceed 35% in four states (Louisiana, Alabama, Mississippi, and West Virginia), 30% in 25 states, and are above 20% in all states.⁵ Inadequate physical activity, sedentary lifestyles, along with poor diet/nutrition are at the heart of the obesity epidemic. Investing and promoting active transportation (walking, bicycling, and transit) encourages more healthy, active lifestyles.

United States Bicycle Industry Reaching Beyond the Recreation Sector

According to the 2014 United States Bicycle Market Report prepared for the National Bicycle Dealers Association (NBDA), the overall size of the industry has remained fairly stable since 2003.⁶ The NBDA report also states that there has been a trend toward bicycle dealers selling used bicycles. While private party sales figures are unknown, the report states an estimated \$1.3 billion in used bicycles were sold in 2014 through bike shops, mass merchants, sporting goods stores, and other retail outlets, indicating interest to a more diverse socioeconomic group.⁶

Also, while mountain bikes continue to be the most popular category, according to the NBDA,⁶ their sales have decreased significantly from the 60% high point in the mid-1980's. Both hybrid/cross bicycles and road-bicycles follow closely behind mountain bicycles as the second and third most popular types, respectively, and show steady growth.

This increase may indicate a greater shift in thinking about bicycling as a transportation mode, rather than just a recreational activity. Shopping trips account for 25% of trips in Denmark, followed by 22% in the Netherlands, 20% in Germany, and only 5% of all bike trips in the United States. Recreational trips account for about 75% of all bike trips in the United States, compared to 35% in Germany, 37% in Canada, 27% in the Netherlands, and 24% in Denmark.^{7,8,9}

As the United States Census Bureau noted in a May 2014 report,¹⁰ there has been substantial growth in bike commuting over the past decade, while about 488,000 persons commuted by bicycle in 2000, over the period 2008-2012 an estimated 786,000 persons commuted this way each year. This 60% increase over that period represents a "larger percentage increase than that of any other commuting mode".^{10, p. 2}

There is a tremendous opportunity for the bicycle industry in the U.S. to grow if it adapts and provides the types of bicycles and accessories that people want for practical trips in urban areas.

Photo courtesy of betterbikeshare.org



Key Demographics

Men, predominantly white men, have been dominating both the sport and commuter bicycling scene in the United States since its early days. Almost all of the growth in bicycling in the United States over the past two decades has been among men between 25-64 years old.¹⁰ The number of women cycling has stayed relatively stable, while the number of children bicycling has dropped significantly.

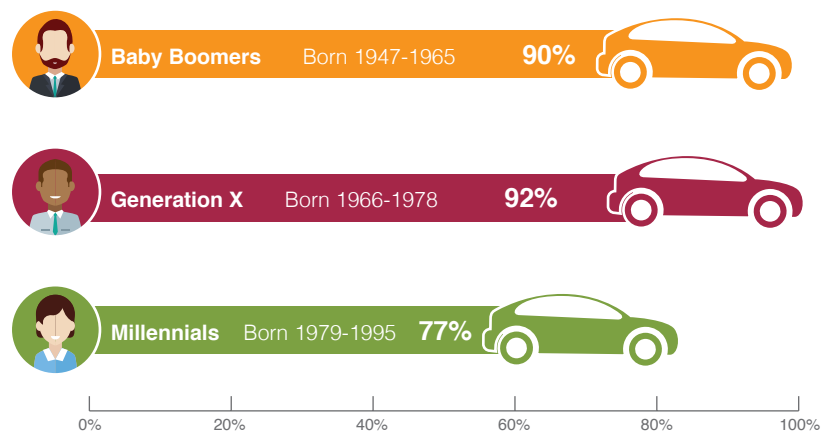
The millennial generation, unlike previous generations, are less likely to apply for a driver's license and have lower rates of car ownership compared to their parents' and grandparents' generations; the main reasons cited are environmental concerns and cost of car ownership.^{11,12}

In the U.S., growth in bicycle ridership among more diverse populations is increasing. Between 2001 and 2009 trips on bikes by white Americans increased 20% while similar trips by Hispanic, Black, and Asian Americans grew 30%, 90%, and 60% respectively.¹³

Bikeable Neighborhoods are Attracting Talent

Bikeable neighborhoods are increasingly seen as essential tools in competing for talented workers. The 2009 study conducted by Heinen, van Weeb, and Maat¹⁵ found that bicycle infrastructure had a significant effect on attracting skilled workers, as did the availability of bicycle parking and showers at offices.

Percentage of age group that commutes to work by car...^{14, p.13}



Photography by Carl Sundstrom courtesy of pedbikeimages.org.



Source: Urban Land Institute, 2013

¹ The Millennial generation is typically defined as those born between 1983 and 2000; however, birth dates and definitions vary.

Cities with the Most People Bicycling Have Made Significant Investments in Infrastructure

It's no surprise that the cities with the highest share of people bicycling have made significant and thoughtful investments in bicycle infrastructure. Cities like Copenhagen (Denmark), Amsterdam (Netherlands), Strasbourg (France), Seville (Spain), and Berlin (Germany), have some of the highest bicycle mode shares in the world, but have not always been that way. Many of these cities experienced a decline in people bicycling during their own "car invasion" in the 50's and 60's. Their city administrations have dedicated transportation funding to create a minimum grid of safe, connected, and physically separated cycle routes designed for people of all ages and abilities.

Similarly, in the United States and Canada, cities like Chicago, IL; Portland, OR; Seattle, WA; San Francisco, CA; and Montreal, Quebec have imported these best practices from abroad and reaped positive results such as increased cycling support, reduction in car traffic, properly designed infrastructure, added bike parking spaces downtown, and multi-modal transportation.

After the BIXI bike sharing system was implemented in Montreal, individuals who lived within 0.6 miles (1 km) of a station were more likely to cycle for transportation.

Work trips in Canadian metropolitan areas are three times higher than in comparable American cities. The Canadian Yukon Territory (roughly the same latitude as Alaska) has more than twice as many bike commuters as California (2% vs. 0.8%) and more than 3 times as many as Florida (0.6%).

In the Netherlands, where the infrastructure has been strategically and comprehensively designed and built to encourage bicycling by diverse users, the estimated per capita bicycling is as high as 1.5 miles (2.5 km) per day, 75% of children over the age of 13 ride bicycles to school, and 31% of people list the bicycle as their primary mode of transportation. In Denmark per capita bicycling is about 1 mile (1.6 km), in Germany it averages 0.55 miles (0.9 km) and Spain, Greece, Portugal, and even the United States are at the low end of the spectrum averaging only .06 miles (0.1 km) of bicycling per person per day.

Bicycling Makes Good Business Sense



Unplanned absences cost companies approximately 6% of payroll, but regular bike commuters take 1.4 fewer sick days per year than typical employees.*



Many employers will experience a 5.5% increase in health care costs in the next few years; however, employers with bike commuting programs can expect a decrease in health care costs.*



According to a survey of 4,000 workers, 25% of drivers reported that their productivity is negatively affected by the stress of their commute, compared to 0% of cyclists.*



Bike commuters make up about 48% of all city traffic (compared to only 22% for motor vehicles).

Sources: Cascade Bicycle Club. Best Practice Guide. 2013.
On Earth. Bike Commuters: Rolling into Work Often, Earlier. 2010.
Copenhagengers Love their Bikes, Denmark, 2016.
Fuller, D., et al. *Evaluating the impact of implementing a public bike share program on utilitarian cycling: The case of BIXI in Montreal, Canada, 2011 Active Living Research Annual Conference presentation abstract.* 2011.
Pucher, J., and Buehler, R., Why Canadians cycle more than Americans: A comparative analysis of bicycling trends and policies. 2006.
Pucher J, Buehler R, Merom D, Bauman A. Walking and cycling in the United States, 2001–2009: Evidence From the National Household Travel Surveys. *American Journal of Public Health.* 2011;101(S1):S310-S317.

* United States Statistics

MOBILITY FOR ALL: HOW BICYCLING BUILDS EQUITABLE COMMUNITIES

The bicycle is a truly universal and equitable form of transportation and recreation. Redistributing public space that has been dominated by cars and providing safe and enjoyable places for people to ride bicycles, can help build more inclusive and people-friendly communities.



Cycling Scotland and SDS, in partnership with Cycling Projects – Wheels for All, held the inaugural national training course for UK Disability Inclusion Training – Cycling. Photo courtesy of scottishdisabilitysport.com.

Bicycling Promotes Independent Mobility

Designing a public realm that supports walking and bicycling is about more than getting people to exercise, improving the environment, or attracting talented young workers. It is also about respect, dignity, and the right to mobility for all people. Not everyone can drive a car (everyone under 16), or can afford to drive one, or even chooses to do so. The way we design our public roads should be safe for all users, including people riding bicycles.

Bicycling is a fun recreational activity, but for many it is also just a practical way of getting from point A to B. According to the United States Census Bureau, a majority of bicycle riders representing diverse ethnic backgrounds rode bicycles as their primary mode of transportation. Although bicycling rates do not vary much by income, it seems likely that economically-disadvantaged persons cycle mainly for work trips and utilitarian purposes, while higher income persons cycle for exercise and recreation.^{15,16,17}

Bicycling is Affordable

The average annual operating cost of a bicycle is \$308.00 compared to \$8,220.00 for the average car.¹⁸ The average American family spends more on transportation about 16% than on food or healthcare.¹⁹ Low income families can spend as much as 55% of their household budgets on transportation. Making it safe and convenient for people to ride bicycles can significantly reduce household costs and keep more money in the pockets of American families.¹⁷

Bicycles are a Practical Tool for All

No matter a person's age, gender, ethnicity, or income, a bicycle can be a powerful tool for improving quality of life. White males between the ages of 24-65 have historically comprised the largest group of individuals who bike in the United States.²⁰ Looking abroad to cities and communities with more developed bicycling infrastructure and support, we see that as bicycling shifts out of a purely sport and recreational activity and becomes a practical transportation option, the gender gap disappears; more young and older people cycle, and the profile of people bicycling is increasingly diverse.

Some research suggests the gap between men and women's cycling participation is very large (2009

Household Travel Survey revealed only 24% of bicycle trips were by women),²¹ while other research suggests it is narrowing (the 2014 United States Bicycling Participation Benchmarking Study Report suggests it's closer to 43%).²² What is clear is that there is a larger gender gap in the U.S. than in many other countries. In the Netherlands, for example, where bicycling is a popular form of transportation, more women (55%) ride than men. In Denmark, it is approximately the same for men and women (50/50). In Germany, 49% of bike trips are made by women.²³

While research suggests that women give safety a higher priority than men, it also suggests that given the right infrastructure, women will participate in bicycling as much, and sometimes more, than men. The 2014 United States Bicycling Participation Benchmarking Report notes that 54% of women surveyed were concerned about being hit by vehicles while riding, and 48% would ride more with protected bike lanes.²²

In the United States, the number of children riding bicycles declined by more than 20% between 2000 and 2010.²⁰ According to the National Center for Safe Routes to School's 2011 report, in 1969, 48% of children between 5 to 14 years of age usually walked or bicycled to school. By 2009, that percentage had plummeted to 13%. In

GROWTH IN THE PERCENT OF ALL TRIPS THAT ARE BY BIKE (2001-2009) ^{24, p.3}



the Netherlands, where the infrastructure has been strategically and comprehensively designed and built to encourage bicycling by diverse users, 75% of children over the age of 13 ride bicycles to school. In Denmark, 44% of all children aged 10-16 cycle to school.

The places with more comprehensive infrastructure also have more older adults bicycling as well. While bicycling rates among Americans aged 65 years or older is very low, it accounts for almost 25% of all trips made by Dutch people aged 65 years or older, and about 12% of older Germans and Danes.⁷

There are some strong signs that bicycling in the United States is increasingly broadening to more ethnically diverse groups. Between 2001 and 2009, cycling rates rose fastest among African Americans, Hispanics, and Asian Americans. Those three groups also account for a growing share of all bike trips, rising from 16% in 2001 to 21% in 2009.¹⁰ When asked about barriers to participation in bicycling, 35% of focus group participants made up of African, Black, and Hispanic Portland residents said that they did not have a place to store a bicycle where it would not get stolen.²⁴

Twenty-six percent of people of diverse backgrounds surveyed in “The New Majority: Pedaling Towards Equity,” a report from the League of American Bicyclists and the Sierra Club,²⁵ say they would like to ride more but are concerned about safety. Sixty percent say that having more bike facilities would encourage them to ride. The

report also notes that between 2001 and 2009, the fastest growth rate in bicycling was among Black American, Asian American, and Hispanic populations. Combined, those three groups went from making 16% of the nation’s bike trips to 23%.

Nineteen percent of Black Americans and 13.7% of Hispanic Americans surveyed lacked access to a car, compared to 4.6% of White Americans.¹⁸ The difference was even greater in economically-disadvantaged communities, where 33% of low income Black Americans and 25% of low-income Hispanic Americans lacked access to a car, compared to 12.7% of low-income White Americans.

Technology Expands Usage Across Abilities

Advancements in bicycle technology have made it possible for people with disabilities to enjoy bicycling. In the last 10-15 years, research and development across a variety of organizations and manufacturers have produced bicycles that make it possible for nearly everyone to ride a bike. There are resources available to those interested in more information such as the United States Handcycling Federation, the Challenged Athletes Foundation, and a Colorado-based organization, Adaptive Adventure.

Overall, with the right investments, there is a tremendous opportunity to create a thriving and diverse bicycle culture in the United States that supports a more inclusive and equitable transportation system.



More than half (54%) of adults in the U.S. perceive bicycling as a convenient way to get from one place to another and 53% would like to ride more often.²²

BICYCLING PROMOTES HEALTH & FITNESS

Numerous studies have demonstrated the tremendous health benefits of active forms of transportation. Bicycling reduces the risk of obesity,²⁸ is an activity that controls weight gain, and has positive effects on individuals' well-being.²⁹ The Federal Highway Administration and the United States Department of Transportation³⁰ agree that bicycling reduces the risk of coronary heart disease, stroke, diabetes, and other chronic diseases. It has been found that bicycling lowers healthcare costs as well as improves the quality of life for people of all ages.

A study conducted by Bassett et al. found that “countries [...] where active travel is most common have the lowest obesity rates, while those countries with the highest rates of car use for travel have the highest obesity rates.”³¹, p. 798 The authors also note that active transportation seems to take place in older cities where residential, commercial, and civic buildings are intermingled.

As stated by Parker et al., “bicycling for transportation or recreation is one low-cost way to improve physical activity.”³², p. S106 To reap the maximum health benefits of

bicycling, even small increases in light to moderate activity, such as daily bike rides [...], can produce measurable benefits among those who are least active.³⁰, p. 2

Studies have shown that the health benefits of bicycling far exceed the health risks from traffic injuries.³³, p. S106 However, the “perceptions [of safety and risks] are influenced by forces that are not explicitly tied to the physical act of biking [...] but the context in which it occurs.”¹⁴, p. 37 Countries where people bike and feel safe while doing it, have extensive infrastructure and pro-bicycle policies and programs. Advocating for effective infrastructure is critical so that riders feel safe and are more likely to engage in bicycling.

Bicycling is so good for health that even doctors are starting to “prescribe” bicycling. Doctors at Boston Medical Center prescribe discounted bike-share memberships to qualified patients through their new Prescribe-a-Bike program. In recent years, these programs have also emerged in cities from New York, NY to Austin, TX.

Photo courtesy of cbsminnesota.com.



COGNITION, MENTAL HEALTH & WELL-BEING BENEFITS

A comprehensive study conducted by Danish investigators looked at nearly 20,000 Danish children between the ages of 5 and 19 and found that “children who walk or cycle to school rather than being driven by their parents have increased power of concentration and their concentration lasted considerably longer (up to four hours) after arriving at school.”³⁴

A nationwide Canadian study explored the emotional experiences of more than 5,000 children on the trip to school and found that children who actively commute report more positive emotions than those who were driven.³⁵ Catherine O’Brien, an associate professor of education at Cape Breton University, in Canada³⁶ refers to this combination of happiness, well-being, and sustainability as “sustainable happiness.”

In addition, mental health conditions such as depression, anxiety, and stress can be improved by a 30+ minute bicycle ride.³⁷ There have also been cases where individuals were able to reduce or even eliminate medication to reduce symptoms by biking a few minutes per day.³⁸ Biking can improve concentration since it requires balancing, reacting quickly to the environment surrounding the individual, and decision-making.³⁸ In older adults, retaining cognitive function is important to decrease the onset of Alzheimer’s, Parkinson’s, and dementia. Biking has been shown to exercise and help grow the hippocampus – the brain area that controls long-term and spatial memory. Individuals who are physically active are shown to have a larger hippocampi and perform 40% better when tested for memory.^{38,39}



Children who bicycle or walk to school learn better

- More attentive and able to concentrate
- Advanced mental alertness by half a school year
- More benefit for mental development than having breakfast and lunch

Source: Egelund et al. (2012) Study of over 20,000 school children.
Photo courtesy of ribike.org

SOCIOECONOMIC IMPACT OF BICYCLING

Higher levels of bicycling and walking have been found to have a positive impact on an area's perceived sense of safety, livability, and community capital.³⁰

Infrastructure costs are significantly higher for motor vehicles than for bikes; miles traveled by bike reduce road and parking demands.⁴⁰ In addition to reducing infrastructure costs, bicycle facilities and paths have been proven to increase property value in the vicinities where they are found.^{41, 42} Properties near bicycle paths are found to have higher sales prices, rents, revenues, and resale values.⁴³

Choosing cycling over driving can save individuals between \$8,600 to \$9,000 a year,¹¹ savings that can be invested in education, retirement, and the local community, and which could provide equity to the households that need it the most. Communities are promoting the use of bicycles and walking facilities to target new markets, bring life to downtown areas, and revitalize businesses^{11,30,40} and it has been stated that “places where residents can easily choose to bike, walk, or take public transit may have more thriving local economies.”^{11, p. 183}

Communities with adequate bicycling infrastructure can also save money by decreasing traffic and commuting times, improving the air quality of the area, and improving public health outcomes.¹¹

Bicycle infrastructure improvements can affect businesses positively and encourage residents to shop in their own neighborhood, as well as encourage tourism. People who bike and walk to an area spend more money in businesses compared to those who drive to that location.^{43,44}

Even though business owners often think removal of on-street car parking would impact their business negatively, reports have shown that adding bike racks and bike lanes increases economic activity and repeat business. A study⁸⁹ examining businesses across the state of Oregon found that “bicyclists actually out consumed drivers over the course of a month. [Bicyclists] often spent less per visit, but both bicyclists and pedestrians in particular made more frequent trips (by their own estimation) to these restaurants, bars, and convenience stores, and [...] receipts added up.”⁴⁵



A 2004 study found the annual economic impact of bicycle tourists to North Carolina's Outer Banks was \$60 million. In addition, 1,400 jobs were created or sustained annually because of these tourists.^{40, p.178}

TRANSPORTATION & ENVIRONMENTAL IMPACT

Photo courtesy of The Alliance for Biking and Walking.



Bicycling is low-cost, energy-efficient, and a pollution-free mode of transportation. Reducing the amount of miles traveled by car and shifting to more sustainable modes such as bicycling can reduce fuel consumption, air pollution,¹¹ carbon emission, congestion, noise, traffic dangers, and other harmful impacts of car use.³³ The Federal Highway Administration and the United States Department of Transportation have stated that nearly 30% of all the energy consumed in the United States originates in the transportation sector. They suggest trading short car trips for walking and bicycling to help reduce the energy consumption levels as well as decreasing emissions.³⁰ Cycling and Environmental impact. Clarify % of short trips: 40 percent of all trips in the U.S. are three miles or less, and two-thirds of them happen in cars.⁷⁸

While motorized vehicles emit hazardous pollutants – about 80% of the carbon monoxide in the atmosphere comes from cars – riding a bike produces zero pollutants.⁴⁶ It not only lowers carbon monoxide pollution but it reduces the clearing of land to house parking lots. Even if cars could emit zero pollutants, cities would still have the problem of traffic congestion as cars take up so much of a city's public space. Twenty bicycles can be parked in the same space as one car. It takes about 5% of the materials and energy used in car manufacturing to build a bike, and a bicycle produces no pollution. Cities with high cycling mode share understand that; when space is at a premium, they know they could never move as many people, as fast, inexpensively, and as clean, with only cars.



“Since bicycling can [easily] accommodate trips of up to 2 miles (3.2 kilometers) and most people can walk at least 1 mile (1.6 kilometers), there is a huge opportunity to shift shorter trips from car trips to bicycle trips.” 40, p. 160

CYCLING MISCONCEPTIONS AND FACTS

It would seem that there are many people who would love to ride a bike more, but have fears that keep them from doing so. There are also some people who, for different reasons, are against bikes being able to share our streets. Unfortunately, both attitudes toward bicycling are often based on myth, so it is important to educate with facts to help dispel these misconceptions so people have a greater understanding of bicycling, both as a desirable mode of transportation and as culture.

People riding bikes are “elite athletes”

While people who ride bikes in busy traffic lanes generally have at least an average skill level, they are by no means always a cycling athlete. Most people on bikes are just trying to get somewhere by choosing to use a bicycle.

Roads are funded by gas taxes, why should bikes get to use them for free?

When a bicyclist takes a trip, they do not pay for gas, and therefore they do not pay for gas nor gas tax. In addition, they do not pay tolls, parking, license or registration fees. All these fees in turn pay for roads, their maintenance, and policies associate with the infrastructure. Bicyclist do not even pay for insurance as motor vehicles do. However, bicyclists may also own a car and if they do not, from time to time may rent one. In these instances, they pay for the same taxes even if they own and use their bicycle regularly. The truth is, most gas taxes do not pay for roads either.²⁶ Transportation budgets come from many sources. Grants, general funds, property tax and levies, sales tax on a purchase, and many other sources contribute to road infrastructure which is paid by everyone, not just motor vehicle drivers. In addition, a bike and rider have far less impact than a 3,000 lb. (1.5 ton) car or 25,000 lb. (12.5 ton) bus.

Bikes just do not belong on the road

Ideally, all people of any age or ability should be able to move freely around a community. This entails offering choices, whether on foot, or by bike, bus, or car. This transportation diversity also decreases the wear and tear on streets, reduces maintenance costs, and our impact on the environment. Diverse transportation modalities support healthy and sustainable communities, keep more money in people's pockets, increase economic competitiveness, and add to the character of a community.

People on bikes disobey traffic laws

Unfortunately, no matter how people get around, there will be those who break the laws. Pedestrians jaywalk, drivers fail to yield and/or exceed speed limits, and commercial truck drivers may disobey weight or lane restrictions. Unlawful behavior is certainly not encouraged by the cycling community, as it puts people in danger.

Riding a bike is not safe

While statistically speaking, driving a car could be considered less safe,²⁵ the fear of riding a bike mixed with heavy and fast moving car traffic is real and valid. Many cities lack the adequate infrastructure that invites people of all ages and abilities to ride. This is an even more compelling reason to advocate for protected bike lanes and road share programs.

There are not enough good weather days to ride a bike regularly

It is true that riding a bike on a sunny day that is not too hot or too cold is ideal. However, in Scandinavian countries, there are generally more rainy and cold days than in the U.S. and their cycling mode shares are much higher. Research has proven over and over again that weather and climate has very little to do with bicycling rates while infrastructure is a much stronger predictor. On the days that it does rain, the Danes, Dutch, and Swedes simply put on a rain jacket. Many cities also have special snow plows that clear the cycle routes just as they do for cars.

My neighborhood has too many hills to make riding possible

Consider an electric assist bike. It can still be pedaled normally, but when faced with a hill that exceeds the rider's level of fitness, one can engage a motor to help ascend, then go back to cycling when the rider gets to the top.

In summary, there are many misconceptions about bikes, roads, and bicycle riders. To help increase the number of people who would use a bicycle, it is important that we educate people to the realities, and benefits, of using a bicycle as a reliable, safe mode of transportation.

PLANNING AND DESIGN: BUILDING A NETWORK

It is clear the benefits of bicycling are well documented and researched. There is tremendous untapped potential for more bicycling in the United States.

When considering the impact of bicycles, it is important to note the growth rate of a community. As more people move to urban areas, the growth of infrastructure is limited. Part of the strategy for accommodating growth should be in nurturing a bicycle culture, and attracting new cyclists in a manner that benefits the city's livability, public health, economic viability, affordability, and environmental concerns.

A well planned and designed infrastructure ensures bicycling and walking can be part of daily life for a community. Photos courtesy of peopleforbikes.org

There is a plethora of information on bicycle design and planning. To ensure success and uptake, it is critical that any new bicycle infrastructure be a key part of a city's overall strategic plans and transportation master plans. If a community is new to active transportation planning it can sometimes be hard to know how to get started and what the most important elements are. One way to determine where to build better biking infrastructure is to utilize bicycle counters. For example, the Dero ZAP program allows communities to collect non-motorized data as participants pass a RFID (radio-frequency identification) sensor.



Based on existing best practice and research there are two key infrastructure ingredients a city needs to plan, design, and build in order to nurture an inclusive culture for bicycling: **building a minimum network/grid and lowering traffic speeds.**



BUILDING A MINIMUM NETWORK/GRID

No city could ever hope to significantly increase cycle mode shares without providing an attractive, safe, and convenient way for people riding bicycles to travel. Planning and designing a connected, safe, and comprehensive network of bicycle routes is the most important step any city or community can take to encourage ridership.

Unfortunately, over the last decade much of the bicycle infrastructure that has been designed and implemented in cities across the United States has been done inadequately, sparsely, and on an ad hoc basis. This type of disparate and unsystematic approach has not yielded significant improvements to bicycle ridership. Just as the roads in a city are only useful because they are all connected to one another – as well as to highways,

parking lots, and gas stations – it is critical that bicycle infrastructure be designed in the same way.

The average percentage of commuters who bike to work in the United States is still less than 1% on average and below 2.5% for the most populous cities in the United States.¹⁴ Until significant investments are made in safe and connected grids of cycle routes on our road networks, bicycling will continue to be a small share of the transportation mix.

A minimum network refers to a grid of separated bicycle routes on major streets/arterials (several running north-south and several running east-west for cities with a grid system), physically separated from cars, that connects key origins and destinations.

Photos courtesy of peopleforbikes.org





LOWERING TRAFFIC SPEEDS THROUGH INFRASTRUCTURE

Lowering speeds limits and providing traffic calming interventions on neighborhood streets significantly increases the safety of these streets for both pedestrians and cyclists. If a collision occurs with a vehicle traveling at 40mph (64kmh) the risk of fatality is 85%, if reduced to 30mph (48kmh) it is 45%, and at 20mph (32kmh) it is only 5%.⁴⁸

Street Infrastructure

There are many examples of modifications to the street to encourage bicycling and lower traffic speeds. Travel-related infrastructure for separated bike lanes, intersection treatments, road makeover, traffic calming, and bicycle boulevards are critical considerations.

Separated Bike Lanes

Properly marked protected bike lanes increase safety, especially for individuals with little bicycling experience and are therefore recognized as a best practice. Also called “cycle tracks, bikeways, or green lanes,” these facilities are physically separated from vehicular traffic³³ and sidewalks. Separated bike lanes typically run in the same direction as vehicle traffic, though these may be modified as necessary to make the bike route accessible.⁴⁹

In the United States separated bike lanes are becoming increasingly popular; these facilities have seen approximately 38% growth every year since 2006. When configuring bike lanes, existing traffic patterns and behaviors should be taken into account for adequate safety and protection to the cyclists from parked and moving vehicles.⁴⁹

Many cities use colored pavement to delineate stops and paths, and to help bicyclists navigate complex intersections. This has been found to increase cyclist comfort levels,⁵⁰ however, maintenance may be a consideration as the color may wear off easily.

Protected Intersections

A new, innovative way to protect cyclists is to go beyond the protected bike lane. Dutch designers devised a way to mix physical protection while timing traffic signals. These protected intersections, which are making their

Separated Bike Lanes.
Photo by Paul Krueger courtesy of commons.wikimedia.org.



Non-Separated Bike Lanes.
Photo by Jennifer Campos courtesy of pedbikeimages.org.



Buffered Bike Lanes. Photo courtesy of



way to the United States, provide four design elements: a corner refuge island, bicycle-friendly signal phasing, a forward stop bar, and a setback bicycle crossing.⁵¹ This new design has already been implemented in Davis, CA and Salt Lake City, UT, marking a milestone for American bike infrastructure. It has already decreased cyclists stress levels, it has improved visibility, and reduced turning conflicts.⁵²

Non-Separated Bike Lanes

These bike lanes provide marking and signage painted on the pavement. Placed next to car lanes they flow in the same direction as all vehicle traffic. Typically installed on the right side of the street, they are placed between the travel lane and curb, road edge, or parking lane. Separated bike lanes are highly preferred over non-separated lanes.

Buffered Bike Lanes

These lanes are similar to conventional bike lanes except they have a designated buffer space that separates the bicycle lane from the adjacent vehicle lane and/or parking lane. The advantage of these lanes is that they provide greater distance between cars and cyclists. It also allows cyclists to pass each other without leaving the bike lane.⁴⁹

Contraflow Bike Lanes

Contraflow lanes allow bicyclists to ride against vehicle traffic on one-way streets.^{33,49} The one-way street is converted into a two-way street: one direction for vehicles and bikes and the other for bikes only. The bike lanes are usually separated by a double yellow lane stripe.⁴⁹

Contraflow bike lanes are not usually recommended because motorists are not expecting traffic to be traveling in the opposite direction on a one-way street, but can offer the following benefits:⁵⁰

- Substantial time savings in out-of-direction travel.
- Direct access to high-use destinations.
- Improved safety because of reduced conflicts on the longer route.
- There are few intersecting driveways, alleys, or streets on the side of the contraflow lane.
- Bicyclists can safely and conveniently reenter the traffic stream at either end of the section.
- A substantial number of cyclists are already using the street.
- There is sufficient street width to accommodate a bike lane.

Left Side Bike Lanes

These are similar to conventional bike lanes; however, they are placed on the left side of a one-way street. These provide an advantage along streets with heavy traffic, parking turnover on the right side, or other conflicts that are associated with right side bike lanes. In addition, these reduce the frequency of someone opening the door on the right and hitting a bicyclist.

movingahead.org.

Contraflow Bike Lane. Photography courtesy of nacto.org.



Left Side Bike Lane. Photography courtesy of laecovillage.wordpress.com.



Intersection Treatments

The extent and specific design of intersection treatments vary from city to city; however, they have been found to reduce conflict between cyclists and vehicles thanks to higher visibility levels, showing a clear right-of-way, and facilitating eye contact with other street users.⁴⁸ Some ways to modify intersections include: traffic calming solutions, bicycle boulevards, and bicycle boxes. Even though they may vary, they generally include most of the following:⁷

- Special bike lanes leading up to the intersection, with advance stop lines for cyclists, far ahead of waiting cars.
- Advance green traffic signals for cyclists and extra green signal phases for cyclists at intersections with heavy bicycling volumes.
- Turn restrictions for cars, while all turns allowed for cyclists.
- Highly visible, distinctively colored bike lane crossings at intersections.

- Special cyclist-activated traffic lights.
- Traffic lights timed to provide a green wave for cyclists instead of for cars, generally assuming 14 to 22 kmh.
- Bike pathways moved a bit farther away from their parallel streets when they approach intersections to help avoid collisions with right-turning cars.

Bike Boxes

Bike boxes are an extension of the bike lane marked at intersections and located in front of the vehicle lane. These boxes provide a buffered area for bicyclists to wait while the light is red.⁴⁹ The intention of these boxes is to make bicyclists more visible to vehicles. In addition, these boxes provide cyclists with a head-start through the intersection when the light turns green.³³ In most cases, the bike box is a 14-foot-wide rectangle extending the width of one or more travel lanes and painted in a bright color.³³

Intersection treatments. Photography courtesy of Paul Krueger courtesy of flickr.



Bike boxes. Photo courtesy of Bike Walk Lincoln Park.



Road Makeover (a.k.a. Roadway Reconfiguration)

A road makeover involves changing the pattern of an undivided four-lane roadway into three lanes. These three lanes are made up of two through-lanes for cars and a middle or center lane that acts as a two-way left turn lane. The reduction to three lanes allows space to be reallocated for other uses such as bike lanes, pedestrian crossing islands, or parking. There are many safety and operational benefits of using road makeover techniques not only for motor vehicles but also for pedestrians and bicyclists alike. The United States Department of Transportation FHWA states the following benefits:⁵³

- Decreasing vehicle travel lanes for pedestrians to cross, therefore reducing the multiple-threat crash (when one vehicle stops for a pedestrian in a travel lane on a multi-lane road, but the motorist in the next lane does not, resulting in a crash).
- Providing room for a pedestrian crossing island.
- Improving safety for bicyclists when bike lanes are added (such lanes also create a buffer space between pedestrians and vehicles).
- Providing the opportunity for on-street parking (also a buffer between pedestrians and vehicles).
- Reducing rear-end and side-swipe crashes.
- Improving speed limit compliance and decreasing crash severity when crashes do occur.

Road Makeover - Combined Bike Lane/Turn Lane. Photography courtesy of nacto.org.



Traffic Calming

Traffic calming constitutes an important part of the overall network of bicycling routes.⁸ In order to reduce speeds and increase the safety for users of these routes, street alterations that result in traffic calming include narrowed roads, raised intersections, “traffic circles, extra curves and zigzag routes, and speed humps. As a result, these alterations to the streets impact bicyclists and pedestrians by reducing the speeds on secondary roads as well.⁸ The Pennsylvania Department of Transportation explains the use of these design elements clearly, traffic calming can increase both the real and perceived safety of pedestrians and bicyclists, and improve the quality of life within the neighborhood.”⁵⁴

Bicycle Boulevards

Bicycle boulevards may allow all types of vehicles; however, the roadway is modified as needed to allow and enhance cyclists’ safety and convenience. Modification techniques allow for improved pedestrian safety, traffic calming, and reduced speed of motor vehicles.³³ Boulevards provide cyclists a safer environment, especially for those who do not feel comfortable riding in the street. Usually located on residential streets, boulevards favor cyclists. Traffic calming and design

elements may include speed humps, traffic circles, curb extensions, medians, and traffic signals. These modifications improve road conditions for bicyclists and pedestrians alike.⁵² NACTO provides further guidance on how to enhance boulevards through design treatments that provide the following benefits:⁴⁹

- Route Planning
- Signs and Pavement Markings
- Speed Management
- Volume Management
- Minor Street Crossings
- Major Street Crossings
- Offset Crossings
- Green Infrastructure

Many of the treatments presented in this section not only benefit people on bicycles, but also help create and maintain “quiet” streets that benefit residents, improve safety for all road users, and improve travel times for all modes.

Traffic Calming. Photography courtesy of nacto.org.



Bicycle Boulevard. Photo courtesy of reconnectrochester.org.



Integration with Public Transportation

Every trip begins and ends with walking and all trips are usually multi-modal. While some may drive to a specific location and continue their trip by bus or bicycle, others may bike to the bus station, take the bus, and finish their trip by bicycle. The best practice is to have an integrated and multi-modal approach to transportation where bicycles play a key role. Integration is not just carrying bikes on buses or trains; it is about getting to and from public transportation stops to desired destinations. Bike racks on buses provide accommodations for those who choose to bike, but far more important is to provide parking at bus stops and train stations where commuters can leave their bikes and continue their journey using another mode of transportation.

Integrating bicycling with public rail and bus transport should also include routes to the stations as well as accommodations on the train and buses. Accommodating bicycles on public transportation involves internal storage of bicycles in purposely built rail cars, or racks to maximize space efficiency and minimize discomfort for other passengers. The caveat to integrating biking in public transport is that at peak hours space is scarce for

both people and bikes. When infrastructure is appropriate, people may decide to have two bikes. One is used to transport the person from one location to the public transit center, and another, kept in secure storage at the center, is used to travel to the final destination. Some individuals accomplish this by utilizing the bike-share program in their city.

Another type of integration is the provision of bicycle rentals or bike-share systems. Individuals can take public transit to a stop near their destination and then rent a bicycle to continue to their final destination. For more information on bike-share systems, refer to page 51 of this publication.

Bike racks on buses increases the ridership and additional revenue to the public transportation business. Photo courtesy of intercitytransit.com.



Bicyclists on Sound Transit's Link light rail. Photo courtesy of pedbikeimages.org.



ADDING AMENITIES TO INCREASE USAGE

Bicycle Parking and Storage

Bicycle parking allows people to bicycle more often, increases business visibility by installing parking spaces in front of stores, and provides well-designed shared spaces to both bicyclists and pedestrians alike, strengthening communities.^{46,56}

Bicycle parking is quite inexpensive, as it only costs a fraction of what it would cost to build vehicle parking. A bicycle rack that holds 10 bicycles has a one-time cost of approximately \$1,000, while an underground single car parking stall costs about \$300 a month and \$30,000 over time to build, permit, and maintain.⁵⁷

Rack Design

Understanding bike parking design and function can help communities prioritize needs, functionality, and optimal design considerations.

Hoop Style Racks

If you are looking to encourage cyclists to utilize bicycle parking, hoop-shaped racks that support the frame in at

least two places are ideal for protecting the bicycle and ensuring parking capacity.⁵⁸

Wave Style Racks

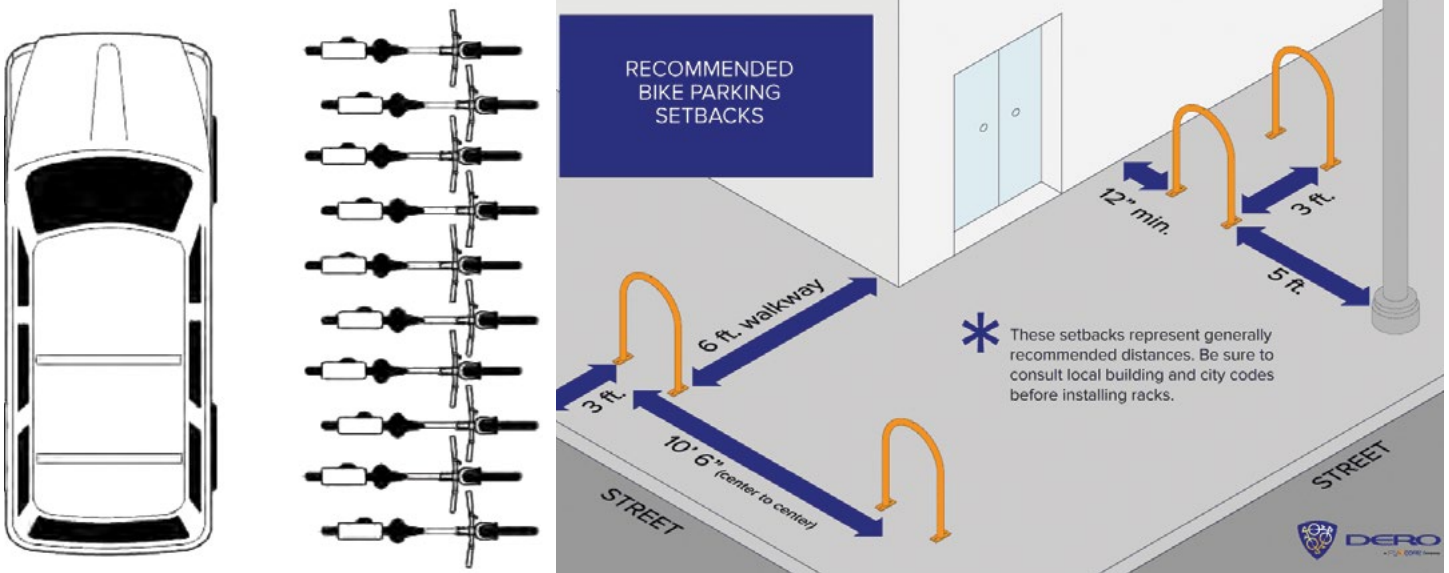
Wave style racks are U-lock compatible, cost effective, and aesthetically simple. However, rolling or wave style racks are not optimal for bicyclists because they do not provide two points of contact with the frame bicycles often tip over and are packed too tightly together. To help protect their bikes, bicyclists often park parallel to a wave style rack, essentially turning an 11-bike rack into a 2-bike rack.

Grid Style Racks

Many standard grid-style racks support only the wheel of the bicycle and not the frame. This leaves the bicycle vulnerable to damage, which earned this style the nickname “wheel-bender.” Also, bicyclists often drape their bicycles over the top bar in order to allow locking it with a U-lock. This practice can reduce the rack’s capacity by half.

A single underground car parking stall holds approximately 10 bikes.

Image courtesy of Dero



Custom Racks

Several bicycle rack manufacturers are producing racks that provide adequate support and could easily qualify as street art, in order to infuse playful elements, branding, and even theming to celebrate local heritage. A well-designed rack can enhance the visual appeal of the area in which it is placed. Though custom racks may cost more than a standard bicycle rack, the benefits include heightened visibility and improved public perception of the community's values.

Location/Site/Context

Identifying Issues

While identifying community bicycle parking needs, notice where bicyclists tend to park and the locations where bicycle parking is clearly inadequate. When no bicycle racks are provided, bicyclists will improvise and lock their bicycles to anything that seems secure. This often results in damaged fixtures such as light posts and railings, causing hazards to pedestrians, and creating an unattractive sight for residents and visitors to the area.⁵⁸ Investing in bike storage may offset costly repairs to other infrastructure being used as bike racks.

Visibility

Bicycle planners recommend placing a bicycle rack within 50 feet of an entrance or at least as close as the nearest car parking stall to encourage use through easy access. Paint the bicycle racks bright colors to increase visibility and use signage to direct bicyclists to the designated bicycle parking area. In addition, placing the bicycle rack in an area of high pedestrian traffic may also help to deter theft. Placing racks behind buildings or in other out-of-sight locations gives thieves more time to work unnoticed. Visibility is essential for promoting a safe environment.

Hoop style racks are desirable because they support bike frames in two places.



Wave style racks are not optimal for bicyclists since they do not provide two points of contact.



Grid style racks are not optimal and are known as wheel-bender bike racks.



Custom racks can offer function and interest.



Space Use, Capacity, and Setbacks

The number of bicycle spaces needed at a business, office, or residential building may vary according to contextual circumstances. The easiest way to find the answer to how many spaces are needed is to contact the city or town government and confirm if any minimum ordinances or mandates are applicable.

If there is no minimum number necessary, the recommendations from the Victoria Transportation Policy Institute in Vancouver, British Columbia provides guidelines on bicycle parking provisions. This recommendation is among the most respected set of guidelines in the world. See the resources section for more information

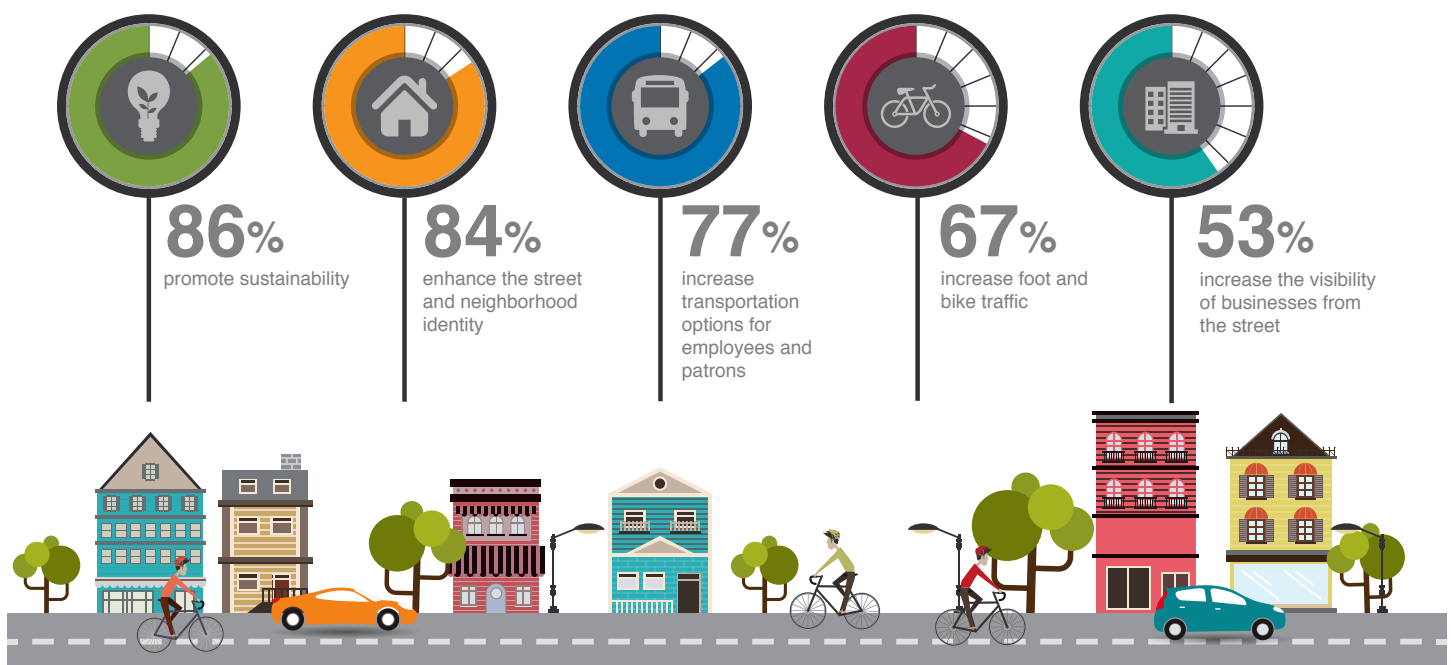
Once the number of spaces has been determined, adequate room needs to be provided. A bike rack manufacturer will have different bike parking systems to fill a particular space with optimal spacing and setbacks. For parking systems that park bikes vertically for a short period of time, a good rule of thumb for the space needed to park approximately 60 bikes is 20' x 20' (51cm x 51cm). Proper setbacks from obstructions is critical. Also, a

bicycle rack should not obstruct other objects such as street furniture, access doors, or right of way.

General guidelines for setbacks in the United States include: a 6 feet (1.8 meters) walkway space, 3 feet (0.9 meter) from curbs, 8 feet (2.4 meters) from fire hydrants, 10' 6" feet (3 meter) from other bike racks, 3 feet (0.9 meter) from one bike rack to another, and 8 feet (2.4 meters) from bike rack to street lights.⁵⁸

Long-term parking spaces, designed to meet the needs of multiple stakeholders such as employees, residents, public transport users, and others, take a different shape than short-term spaces; users leave their bicycle unattended for longer periods of time. These parking spaces can be a room within a residential building, the workplace, secured spaces within a parking garage, or even lockers at a transit center which protect bicycles from the weather and have increased security. These could also be private or public depending on the needs.⁵⁹

Top Five Perceived Bike Corral Benefits:



Source: Meisel D. Bike corrals: Local business impacts, benefits, and attitudes. Portland State University School of Urban Studies and Planning.

Bike Corrals

A bike corral generally provides parking for 6 to 12 bicycles in a car parking space; they are typically located in front of businesses that request them. These spaces are clearly marked from the roadway through the use of paint, small buffer zones, flexible bollards, or a combination of these elements. The corral only takes the space where a car would have been parked and does not extend into the pedestrian area nor is it elevated above the roadway.^{44,60}

Some businesses are concerned that the loss of car parking will have a negative effect, resulting in a decrease of car-driving customers visiting their establishment. However, evidence suggests otherwise. After installing corrals, business storefronts become more visible, and businesses with bikes parked outside are perceived as popular, attracting the attention of other bicyclists, drivers, and pedestrians by opening the sidewalks to people.^{44,61}

A recent study of Portland's bike corrals – one of the first cities to establish bike corrals in the United States – showed that nearby businesses appreciate the bike corrals as a value added to their amenities. Business owners responded to a survey and stated that they

thought bike corrals enhanced both the street and neighborhood identity. They added that bike corrals helped promote sustainability, while increasing transportation options for employees and patrons alike, increased foot and bike traffic, and visibility of the business.⁶⁰

Other Solutions

Many communities and campuses are finding that covered bicycle parking encourages people to travel by bicycle. Shelters and bicycle stations offer bicycles more protection from the elements than uncovered racks. A shelter's canopy can help keep rain, snow, and sun off bicycles and their riders.

Bicycle Shelters

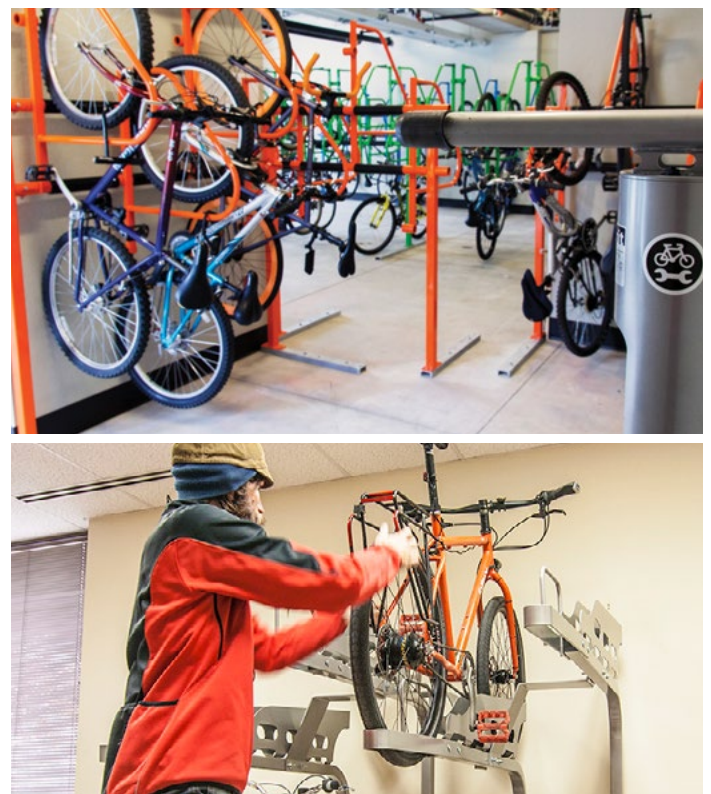
Bicycle shelters may provide bike storage in areas that would not normally accommodate bicycle parking. Shelters come in a variety of styles and sizes, including modular systems that provide covered and secure bicycle storage while being extremely space-efficient and cost-effective.

Shelters allow the bicycle's frame and wheel to be secured

Optional side and back shelter panels add increased protection against the elements.



Bike rooms are great solutions for long-term, protected parking.



with a U-lock for greater security. Panels can be added for protection from the elements. Benches are another feature that can be installed in the interior and exterior of the shelter if used at bus stops or in areas where people may need to sit while they wait.

To bridge the gap between short- and long-term parking, a simple canopy design that provides a solid, secure structure may be used. Bicycle racks can be added to accommodate existing bicycle parking. These types of shelters are easy to use and adding more sections is easy. Styles include vertical and two-tiered arrangements. Larger covered shelters that provide high-capacity storage are known as cycle stations, and usually have a high roof and open platform allowing for traditional, vertical, or two-tiered bicycle racks to be configured as needed.

Bike Rooms

Bike rooms provide a great opportunity for high security, long-term parking when there are no outdoor shelters or lockers. Dedicated indoor bicycle storage rooms are praised by bicyclists for residential and commercial use.

On-street bicycle parking provides businesses a way to attract bicycling customers.



On-street Parking

Several communities have begun implementing on-street solutions for bicycle parking. Though sometimes controversial, New York City, NY; Portland, OR; and Columbia, MO; have all removed some car parking spaces to provide additional bicycle parking. This solution is ideal in high-density areas with narrow sidewalks and moderate pedestrian traffic. Portland's program has been so successful that businesses have begun requesting removal of car parking in favor of bicycle parking in front of their stores and offices.

Temporary Parking

Often overlooked, event parking is a critical building block for bicycle-friendly communities. State fairs, music festivals, and sporting events draw hundreds or thousands of attendees. Unfortunately, many organizers often forget bicycle parking altogether, leaving bicyclists stranded and area parking lots overcrowded. Some cities, such as San Francisco, have passed mandatory minimums for valet bicycle parking at events. Successful bicycle parking at events also contributes to a venue's overall green image. Transport London suggests offering temporary bike parking for 1-2% of the expected number of attendees to an event.

An event can attract more attendees by offering temporary parking to accommodate bicyclists.



A public bicycle repair station helps bicyclists to perform the proper maintenance for their bicycles.



End-of-Trip Facilities

There is consensus on the need to provide good parking for bicyclists – especially secure, sheltered parking to help prevent theft and to protect bicycles from inclement weather.³³ It is additionally important to think about offering other amenities that encourage people to bike more often.

Public Bicycle Repair Stands

Offering tools where people need them – near streets, shops, trails, and bicycle storage areas – will encourage people to bike more frequently. There is an array of public bicycle repair equipment available that can be installed indoors or outdoors. These repair stations allow individuals to maintain and repair their bicycles as necessary, minimizing downtime. Stations generally include tools to perform basic repairs and maintenance, from changing a flat tire to adjusting brakes and derailleurs. In most cases, tools and an air pump are securely attached to the stand with stainless steel cables and tamper-proof fasteners. Hanging the bicycle from the attached hanger arm allows the pedals and wheels to spin freely while making adjustments. Some repair stations may offer Quick Read (QR) codes with repair instructions for those bicyclists with limited knowledge. The QR code can be scanned to view detailed instructions on smart phones. One of the most common maintenance issues for bicyclists is keeping air in the tires. Adding an air pump to the bicycle parking area addresses this issue. Most pumps can be secured with tamper-proof hardware and

reinforced for maximum durability. Other air pumps are specifically designed for heavy-duty use in public bicycle areas. A pump is only useful as long as it works, so it is advisable to look for equipment that is built for durability. Minimal maintenance and robust design ensure the pump is ready to be used when needed. Communities can provide maps or weblinks to help bicyclists know where their closest repair station can be found, similar to the map found at dero.com/fixitmap/fixitmap.html.

Other End-of-Trip Facilities

In addition to the public bicycle repair equipment, full bicycle repair shops can be found at train stations or bus stations to allow cyclists to leave their bikes to be repaired while they are not in use. These repair shops may offer tune-up, bike checks, flat fixes, and break/shift adjustments.

Other end-of-trip facilities may also include: bike wash station, showers, and locker rooms to store changes of clothes. In partnership with the Oregon Health & Science University, the Portland Aerial Tram offers bicycle valet service at the tram (gobybikepdx.com). This facility offers not only bike parking spaces but bike share, event parking, rentals and repairs, and even tours. Bike Hub is a comparable facility that also offers 24 hours controlled access, transit card sales, and classes (bikehub.com/bartbikestation/).

Parklets

The term “parklet” was first used in San Francisco to describe the transformation of a vehicle parking space into a mini-park for passive recreation, born from PARK(ing) Day. Typically created by building a platform on the pavement, parklets extend the sidewalk space; these spaces can be retrofitted with benches, planters, tables and chairs, umbrellas, bicycle racks, and even art installations. Today, parklets utilize spaces that were occupied by cars to facilitate active recreation. They are usually installed in unused bus stops or any other underused pavement surface. Since streets are considered public right-of-way, parklets are therefore public spaces. Especially in areas of high foot traffic, the use of a few underused parking spaces as parklets can significantly improve the walkability and livability of the area without impacting the availability of parking.

Parklets also work well for traffic calming – with large planters creating a visual friction that slows down drivers. Slower traffic means safer streets. In the case of seating, parklets can offer a visually pleasing solution. These parklets may function as an attraction to foot traffic. People go out of their way to see this new attraction, which may translate into more business and sales in the area. According to Ruth Miller, Department of City and Regional Planning, University of California at Berkeley,⁵⁸ the following are useful guidelines when creating parklets in the community:

Keep the message pro-people, not anti-car.

Neighborhoods with lots of pedestrians tend to also have a lot of cars. Some people will initially oppose any project that takes a single space. Don’t start a fight against parking. Remind them that cars will still have many parking spaces, but outdoor seating space could double or triple. Everyone is a pedestrian at some point.

Parklets can act as traffic calming devices by creating a visual friction.



- **Consider the whole street.**

Once you sit down to talk about parklets, look for other opportunities. One potential site was next to a handicapped parking space. The original layout forced people in wheelchairs to go back into the traffic lane to reach the curb cut. After a redesign, the parklet offered a safer, more direct route. Include city staff. Work with staff to identify the process by which parklets can be permitted. Also, reduce the opportunity for conflict by letting planning, public works, parking, and any other relevant committees/people know when and where parklets are planned.

- **Don't put a parklet just anywhere.**

Parklets work best when there is a clear demand for seating. Some streets don't have enough people to make the parklet look welcoming. Other streets don't have the right mixture of businesses to draw people that intend to linger outside. A parklet outside a bar or condo won't work as well as a parklet outside a

bookstore or café. Also avoid streets with traffic over 25 mph. Choose your site carefully.

- **Employ visuals and demonstrations.**

Street safety and traffic calming have a lot to do with feelings, and they can be hard to describe. Use pictures, and when possible, make a parklet for special events, like PARK(ing) Day or Bike-to-Work Day, to help people grasp the concept.

- **Utilize volunteers and donated supplies.**

People are excited to support their city and neighborhood; using donated labor and supplies will keep these projects practical.

Parklets can provide spaces to sit as well as places to park bikes. They could be permanent or temporary. Photo courtesy of nacto.org.



PROMOTING BIKE-FRIENDLY COMMUNITIES

Planning a bike-friendly community must balance the demands of different populations while combining education and promotional programs benefiting the community. The characteristics of those who bike vary significantly in abilities, needs, and even preferences. According to Pucher et al.,¹⁰ policy design should specifically target women, children, and seniors since these groups are seen as the most vulnerable groups requiring special attention. The fastest growing segment of the bicycling population is women, who have historically been underrepresented as riders and leaders in the bicycle movement.⁶³ This is slowly changing but much remains to be done in planning and policy areas.

Salt Lake City Bike Party. Photo courtesy of The Alliance for Biking and Walking.

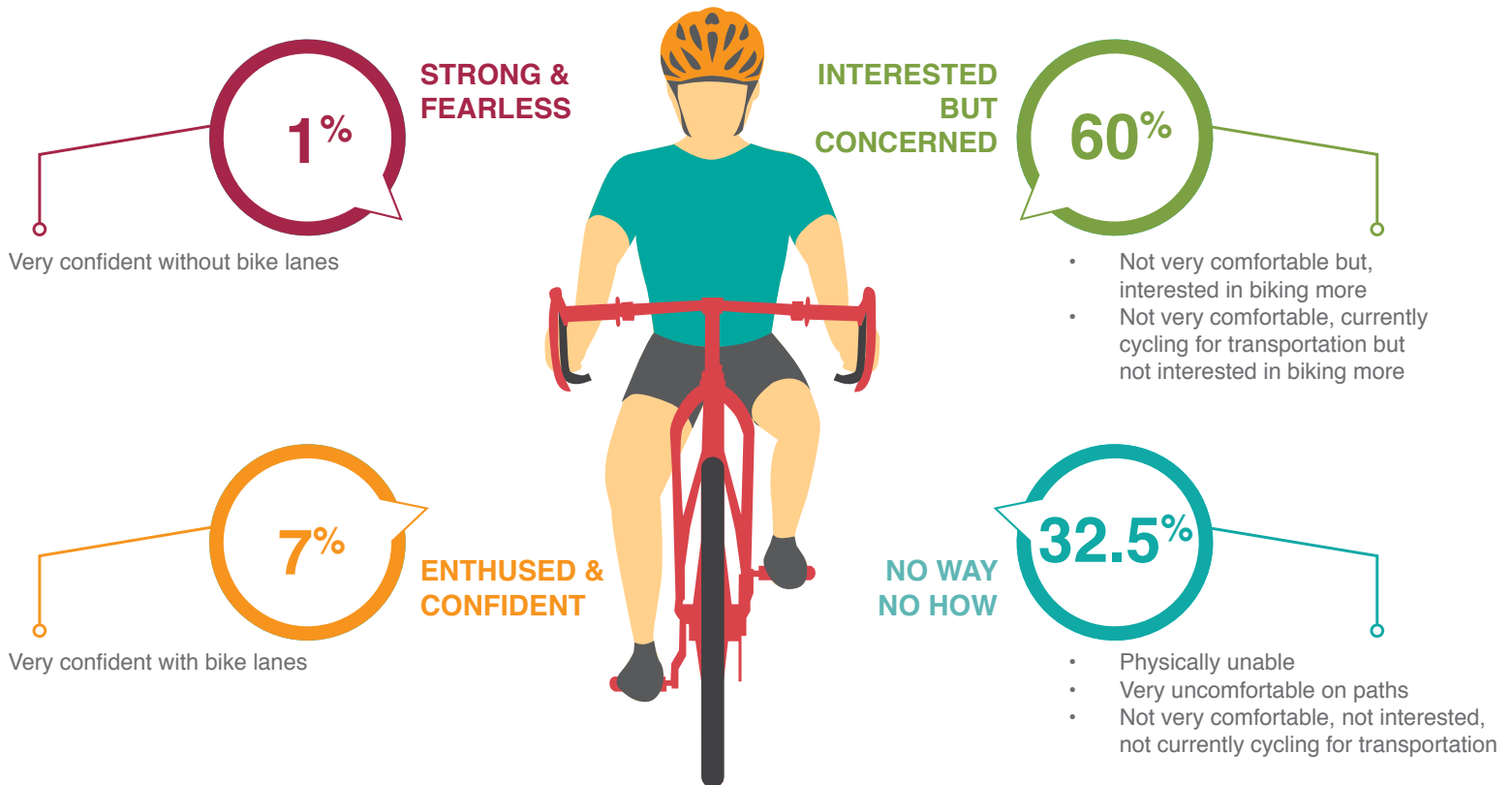


TARGETING DIVERSE RIDERS

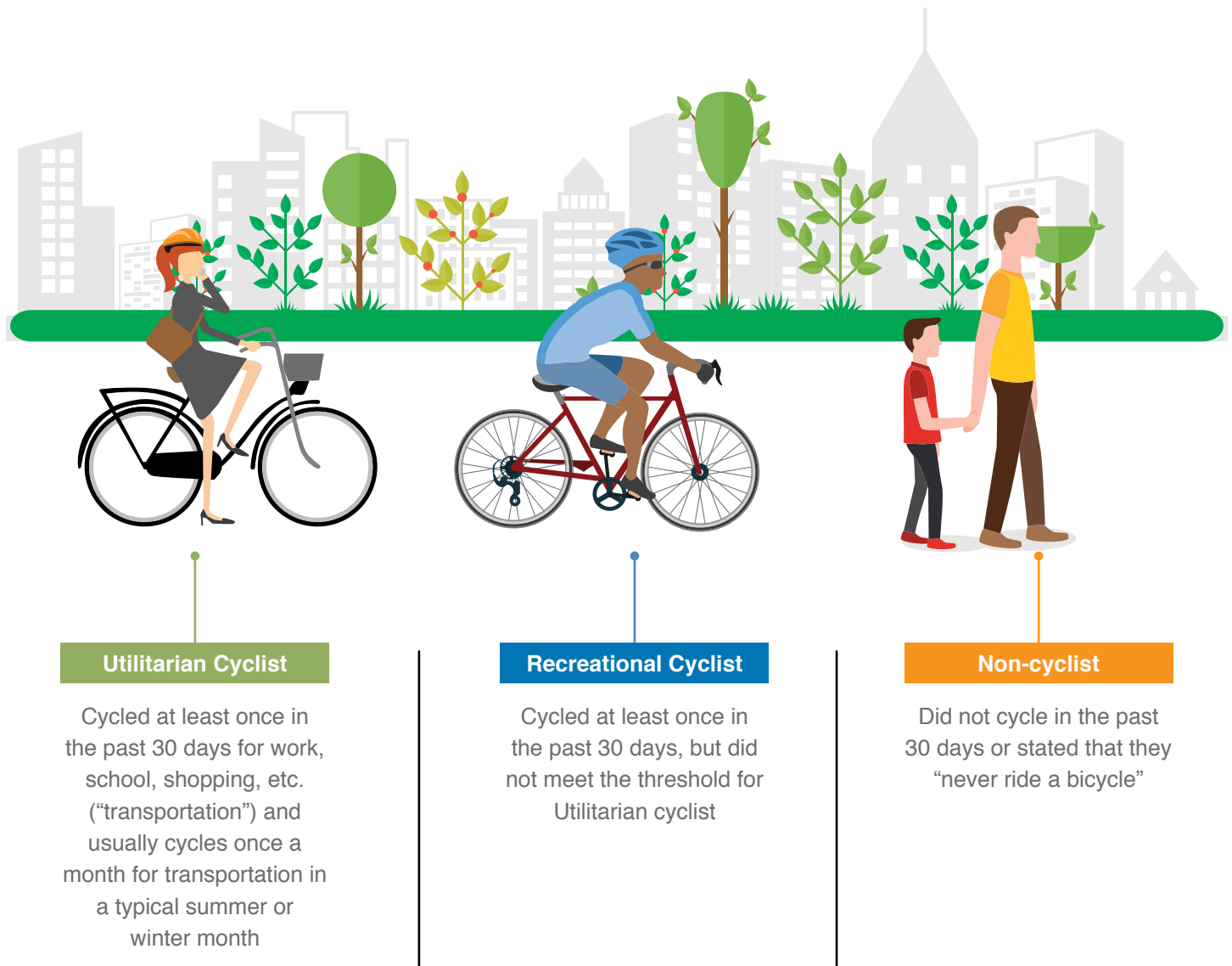
Administrators considering how to increase bicycle usage in their communities, should first understand the needs of riders in their community so that advocacy and programming efforts can be best aligned. Geller⁶⁴ and Dill and McNeil,⁶⁵ categorized bicyclists into four types, shown in the illustration below.

Understanding the different bicyclist types and their behavior could help develop a better marketing and infrastructure plan while helping to address the concerns and needs of each target group. For example, those categorized as strong and fearless identify bicycling

as their primary means of transportation even when the infrastructure may not be what they wish it to be. This group will ride their bikes under any condition. The enthused and confident group is attracted to using bikes as a means of transportation. The interested but concerned group is afraid for their safety, making this their primary reason not to ride. It is not that they dislike riding, but rather are concerned about something happening to them while riding. Lastly, the no way no how group is characterized by a complete lack of interest in bicycling, citing reasons such as “topography, inability, or simply a complete and utter lack of interest.”^{64, p. 3}



According to Dill and McNeil⁶¹ classification of these user groups can also be quantified according to their current bicycling behavior:



Classifications of bicyclists could also help advocates focus their marketing efforts by understanding the frequency of bike use among individuals. Even though biking infrastructure is essential to encourage its practice, various promotional events can encourage interest and generate excitement for biking by all groups of cyclists. What follows are examples of strategies used in cities across the United States, Canada, and Europe that have proven to be valuable tools to increase interest:⁸

- Well-signed and maintained bike routes both in the city and the surrounding countryside, with connections between different routes and color-coded, systematic numbering of paths for improved guidance.
- Comprehensive bike maps for every part of the city and the surrounding region.
- Bicycling websites with extensive information for cyclists on bicycling routes, activities, special programs, the health benefits of bicycling, and bikes and bike accessories.

- Improved lighting and security of bike parking facilities, especially important for women concerned about their personal safety, often featuring priority bike parking exclusively for women.
- Bicycling ambassador programs that send well-trained bicyclists to residential neighborhoods to serve as role models of safe bicycling and help with bicycling promotion, distributing newsletters and information about bicycling events.
- Annual bicycling festivals and car-free days that promote the environmental advantages of bicycling, display the latest bike models and accessories, disseminate various other relevant information for bike enthusiasts, and offer a range of bike races and mass bike rides.
- Wide range of bicycling competitions for different ages and skill levels.
- Annual awards to firms that do the most to increase bicycling among their employees by providing showers, lockers, bike parking, bikes to borrow, and a flexible dress code.
- A focus on the health benefits of bicycling; regular surveys of cyclists both to assess their satisfaction with bicycling facilities and programs and to gather specific suggestions for improvement.

Another method to support bicycling as a viable transportation method is to incentivize those who choose to bike instead of travel by car. Many businesses, employers, and communities have realized the benefits of bicycling and are organizing incentive programs to reward clients, employees, and residents who choose to bike, to take public transportation, or to carpool.

Understanding the diversity of cyclists' characteristics and their classification is important. However, going beyond these limiting classifications is imperative. Street safety, gentrification, community engagement and culture, disparities in gender and race, class, and identity should be discussed, moving the agenda beyond underserved populations. The Untokening: A Convening for Just and Accessible Streets and Communities meeting held in November 2016 in Atlanta, did just that. Together more than 130 leaders in biking advocacy, they were able to take the first step in creating a series of equity statements on these issues. The meeting resulted in a starting point for mainstream advocates to learn more about their justice-oriented counterparts and open the dialogue while advocating for bicycling for all.

A bicycle-friendly community supports and encourages bicycling, resulting in necessary infrastructure, and creating community culture and policy that supports these initiatives. At the same time, the community acknowledges the benefits of bicycling and attempts to create a safe environment convenient for bicycling. As an extension, the community becomes a better place to live, raising the quality of life of the population and improving health, reducing congestion, providing other alternative transportation choices, and creating connections with others.



Cycling to work is associated with less sickness absenteeism. The more often people cycle to work and the longer the distance traveled, the less they report sick. ⁶⁶, p.132

BIKE-FRIENDLY ORGANIZATIONS, CAMPAIGNS & EVENTS

Many organizations, campaigns, and events have impacted communities and their commuters significantly and as a result, have helped increase biking awareness. A selected sample of these organizations is highlighted below. Each one of them has a different mission but is equally important to the biking industry. While this is not a comprehensive list, what follows are organizations, programs, and initiatives that have proven successful.

Ensuring safer roads for user helps increase ridership. Photo courtesy of The League of American Bicyclists.



Bicycle Friendly Programs

Bicycle Friendly America (BFA)

Being bike-friendly has shown to be good for business¹¹ and consequently promotes healthy communities, improves employees' performance⁵⁷ when they bike to and from work, and creates an additional incentive for people who like to bicycle to visit the area. In response to the growing interest for cities to become bike-friendly, the League of American Bicyclists has implemented a Bicycle Friendly America (BFA) program, which includes Bicycle Friendly CommunitySM, Bicycle Friendly BusinessSM, Bicycle Friendly UniversitySM, and Bicycle Friendly StateSM. The Bicycle Friendly CommunitySM program was implemented in the mid-90s. More recently they have launched the Bicycle Friendly BusinessSM program through which businesses can apply and be recognized

by the League as a bicycle friendly organization. The BFA programs include four levels: Platinum, Gold, Silver, and Bronze. The programs have grown exponentially as more cities discover the benefits of bicycling.

Each community, business, university, or state recognized by the League has its own benefits and challenges ranging from climate and topography to culture and population density. The organization promotes five critical elements (known as The Five E's) consistent to making bicycling friendly areas.⁶⁷

- **Engineering:** Creating safe and convenient places to ride and park.
- **Education:** Giving people of all ages and abilities the skills and confidence to ride.

- **Encouragement:** Creating a strong bike culture that welcomes and celebrates bicycling.
- **Enforcement:** Ensuring safe roads for all users.
- **Evaluation & Planning:** Planning for bicycling as a safe and viable transportation option.

The National Highway Traffic Safety Administration (NHTSA) has also put together a bike friendly community assessment geared towards teens. The Cascade Bicycle Club states that the range of organizations implementing bike-friendly policies could range from formal large businesses to corner coffee shops. Organizations can accommodate their employees to foster support, and encourage them to bike more often. The Club proposes the following to become a more bike-friendly organization:⁵⁷

- Create a casual workplace or encourage bicycling on casual attire days.
- Support formal appearance with showers and lockers.
- Offer flexible scheduling to accommodate mechanical or weather delays.
- Allow bicycles to be stored in individual workspaces (office or cubicle).

The external, on-street infrastructure is what makes a community bicycle-friendly and where businesses and communities flourish. Infrastructure includes specialized cycle tracks, greenways, and improvements at intersections where bicyclists of all ages and abilities can ride safely from one point to another. Public transportation

Bicycle storage areas in the workplace solve storage challenges.



connections further increase the efficiency of bicycling as an alternative transportation method.⁵⁷

Vision Zero

Started in Sweden in October 1997, Vision Zero is a road traffic safety project that aims to decrease to zero the fatalities or serious injuries involving road traffic and cyclists. Their goal is to increase safe, healthy, and equitable mobility for all. The project has proven successful in Europe and its currently gaining traction in the United States.⁶⁸ Vision Zero aims to bring together health leaders, engineers, police enforcement, advocacy and policy, to develop and share strategies that make Vision Zero successful in different cities across Canada, the United States, and Europe. In Canada, the Edmonton City Council announced they are the first to officially adopt Vision Zero in 2012 and a national advocacy campaign followed in 2015. In the United States, from Seattle, WA to New York, NY, cities have already committed to Vision Zero while others across the country are working towards implementing program guidelines. The minimum criteria of Vision Zero is as follows:⁶⁸

- A clear goal of eliminating traffic fatalities and severe injuries has been set.
- The Mayor has publicly, officially committed to Vision Zero.
- A Vision Zero plan or strategy is in place, or the Mayor has committed to doing so in a clear time frame.
- Key city departments (including police, transportation and public health) are engaged.

Bike-friendly workplaces encourage cycling to work.



PROGRAMS TO PROMOTE DIVERSITY

Women on Bikes Programs

Specific women-focused programs offer information on how to improve bicycling skills, how to maintain and repair bikes, and advanced classes such as off-road cycling. The League of American Bicyclists understands the importance of this growing segment of riders and has launched Women Bike – the first national advocacy initiative that encourages, engages, and elevates women bicyclists in the United States. They hold events and webinars and provide resources and funding for women cyclists.

There are many programs specifically made for women. These include, but are not limited to, the Women's Program by Boston Bikes and the Women Bike PHL by the Bicycle Coalition of Greater Philadelphia. The Women's Program offers a series of rides, clinics, and

events empowering women to take to the streets by bike. They also organize the Women's Bike Festival, a mom and child ride, an adult learn to ride education program, and a bike social. Women Bike PHL also offers rides, classes, and social events aimed at women cyclists of all levels.

Gearing Up is a program geared toward women, providing women in transition from abuse, addiction, and/or incarceration with the skills, equipment, and guidance to safely ride a bicycle for exercise, transportation, and personal growth.



An increasingly powerful and growing constituency, previously underrepresented groups, are cultivating new campaigns and bike cultures that address the needs, serve the safety, and improve the health of all residents who ride — or want to ride.²⁵

Empowering People with Disabilities

The Programs to Educate all Cyclists (PEAC) was founded in 2014 in southeast Michigan. Recognizing biking as a vehicle for social change, this group's mission is to empower individuals with disabilities through biking. Each summer they offer a seven-week program that teaches 200+ individuals with disabilities how to ride a bike. They teach students how to pedal, steer, balance, and even how to ride 100 miles (161 kilometers) on a tandem. PEAC has a three-pronged objective: 1) to promote physical, mental and emotional strength; 2) to show how biking is integrative and inclusive by offering people with and without disabilities opportunities to spend time together, and; 3) to provide opportunities for an independent mode of transportation to individuals who cannot drive due to a disability.

Multicultural Initiatives

Multicultural Communities for Mobility is a program in Los Angeles that engages people in underserved neighborhoods and advocates for new bike lanes.

The National Brotherhood of Cyclists is a coalition of African American groups promoting bicycling for health and fitness benefits in communities affected by health issues

Red, Bike and Green is a community-building collective of Black urban cyclists seeking to improve the physical and mental health, economy and local environment of African Americans by creating a relevant and sustainable black bike culture.

The Major Taylor Project (MTP) is a year-round, youth development cycling program focused on introducing youth from diverse communities to recreational cycling and creating an inclusive culture of biking.

Photo courtesy of bikeprogram.org/summerprogram.



Biking is becoming as diverse as ever. Between 2001 and 2017 biking rates increased considerably among Blacks, Asians, and Hispanics. These three groups accounted for growth in bike trips from 16% in 2001 to 21% in 2009.⁶⁹

BICYCLING CAMPAIGNS, PROGRAMS & PROMOTIONS

Bike-to-Work Days

Originated by the League of American Bicyclists in 1956, the Bike-to-Work Days (BWDs) program is an event that promotes bicycling as an option for commuting to work across the United States and Canada. The event may be held over a day, week, or month (Bike Month is in May each year, but dates may vary from city to city) and includes free breakfasts, giveaways, contests, and other bike related activities. The BWDs program is very popular in metropolitan areas in the United States. For example, in 2012, Boulder, CO, had 11 businesses give away breakfast to 1,200 participants, increasing to 1,600 participants in 2013. Over the years the number of BWDs programs has increased along with the number of participants. According to the League of American Bicyclists, of the largest 51 United States cities, 43 hosted BWDs events in 2010, and most of the first-time commuters become regular bike commuters after attending the events. During their 2016 Bike to Work &

School Week, British Columbia, Canada served almost 37,000 riders. Almost 7,800 were new riders, with 49% female and 51% male. For more ideas on how to organize a BWDs event, visit the Resources section.

GreenTrips

This Tennessee/Georgia states program offers information to residents and commuters about biking as a healthy, cost-effective, and fun alternative transportation method instead of driving alone. This free program provides individuals with information and incentives for walking, biking, carpooling, transit, and telecommuting. The program also connects individuals to each other to carpool, bike, and walk together. Individuals can enter monthly contests, purchase rewards, and reach different milestones by logging the number of trips they have completed. For more information, visit the Resources section.

Bike to Work Day 2014.
Photography by Eric Tuvel courtesy of San Francisco Bicycle Coalition.



GreenTrips encourages Chattanooga residents to bike, walk, or ride share.
Photo by Steven Llorca courtesy of nationswell.com.



Open Streets or Ciclovías

This program can be found under different names such as Car-Free Streets, Ciclovías, Ciclovías Recreativa, or Open Streets, to name a few. The open streets program is a free community-based program where streets are closed to traffic for a predetermined period of time and reserved for the use of bicyclists, pedestrians, and runners. This practice allows people of all ages, abilities, and backgrounds to come out and enjoy the experience while also improving their health. It is also referred to as “healthiest practice – open streets” because the program has been tried and tested by experts in the field and has shown a positive effect on peoples’ health.⁶⁵ The premise of the program is that when individuals participate in it they can change their habits and by extension, change the cultural health of the city where they live.

Open Streets can be viewed as essentially the world’s largest version of a “pop-up” park, as it is held for a predetermined period of time and then the street is returned to its original purpose. The origin of the movement can be popularly traced to Central and South American Ciclovías (which translates to “bike path”) in the 1970’s, though there is evidence of these initiatives going

back to the 1960’s with car-free street initiatives in Seattle (1965), New York (1966), and San Francisco (1967). The concept is an exciting one that brings people together in a shared love of open air and healthy activity, both physical and social. This is coupled by the fact that even the temporary removal of cars from the road creates a positive environmental impact in many ways, including reducing fuels consumed, pollution, gridlock, and creating temporary noise abatement. The initiative has many activities centered on the promotion of using bicycles, walking, and public transportation as a way to get from place to place. Though it is difficult to measure the results of these efforts, the demonstrable enthusiasm of participants at Open Streets is compelling. In addition, Open Streets can help bolster sales for local business. The initiatives draw an array of vendors and artists to share their food, wares, and services with those who attend, and also provide exposure to these businesses for future consideration. It is an opportunity for bike retailers, enthusiasts, and advocates to educate the public about biking, and to help dispel any myths or address the discomfort of bicycle users advocating for cycling. People who may be nervous about biking to their destination may discover that it is not only possible, it is fun.

Photo courtesy of The Alliance for Biking and Walking.



What are some of the benefits of Open Streets programs?⁷⁰

Open Streets participants have a higher prevalence of meeting physical activity recommendations than the overall population.

On average, Open Streets participants have higher health-related quality of life scores.

On average, Open Streets participants score higher on social capital scales.

Open Streets reduce particulate matter pollution and street noise.

PARK(ing) Day

First launched on November 16, 2005, REBAR – a group of creators, designers, and activists based in San Francisco, CA – converted a parking space into a temporary public park. The goal was to respond to the lack of outdoor spaces in San Francisco since 70% of infrastructure was dedicated to private vehicles. The original PARK stood “open” for a two-hour period, which is the term of the lease offered by the parking meter. When the time expired, the park was dismantled. A week later, a single picture of the event traveled through the web. REBAR started getting requests to create more of these PARK(ing) spaces in other cities. Instead of replicating the idea in other locations, they offered the project as “open-source” creating a manual to empower people to create their own spaces.

PARK(ing) Day is now a global event and has expanded to include spaces hosting everything from political seminars to health clinics, art installations, coffee shops, and bike repair shops. The main goal of PARK(ing) Day is to call attention to the need for more urban open spaces, generate critical debates on how public spaces are

used and allocated, and to improve the quality of life of residents of the area.

Bicycle Film Festival (BFF)

The BFF event is an independent film festival screening short films related to urban bicycling culture in cities all around the world. It was founded in New York, NY in 2001. This event has been a significant catalyst for the bike movement. The festival spans 3-4 days in each city, screening up to 30 films.

Bicycle Buses

Bicycle buses are designed to hold 10-12 individuals who, along with a driver, provide the pedal-power to carry them on their journey. They were originally designed to engage kids and adults in healthier habits and to fight obesity. Netherlands, Belgium, and Germany have incorporated bike buses to transport children to and from school. In the United States a bicycle bus or bike train, can be rented by a group of people who would travel through a set route and timetable to different locations in the city.

Parking Day 2012 - Nashville, TN. Photo courtesy of my.parkingday.org.



Parking Day 2011 by STUDIOS Architecture, Chris Chalmers. Photo courtesy of designboom.com.



Bike Trains

A new grass-roots organization in Los Angeles helps individuals commute as a group by “train.” L.A. Bike Trains specifically targets those individuals who want to commute together by bike. The route includes 10+ lines from Silver Lake to Santa Monica and Santa Monica to Downtown L.A. These routes were specially chosen by experienced urban bicyclists. The organization provides education to new riders, harnessing the safety of riding in a group, and making the experience a social event.

Commuter Programs

Commuter programs encourage mode-share transportation which does not rely on single occupancy vehicles automatically. These are usually tied to businesses, universities, and cities wellness programs. Dero ZAP is a system that helps manage and grow a commuter wellness program set in motion by a company, university, a K-12 school, or even the city. The system is an automated commuter tracking system utilizing RFID (radio-frequency identification) technology. Individuals biking are counted through the RFID dispositive installed

in key areas while a tamper-proof RFID tag attaches to the front wheel of the bicycle. Both the administrator of the program and the commuter have access to the collected data. The system also helps to recover stolen bikes thanks to the unique tag number on the tamper-proof RFID tag.

Pace Car Programs

The first Pace Car Program was implemented in Boise, ID and then across cities such as Salt Lake City, UT; Santa Cruz, CA; and, Boulder, CO. The goal of the program is to encourage motorized vehicle drivers to reduce speeds and encourage them to drive safe. In neighborhoods, residents register their car as a Pace Car and sign a pledge that states they will drive courteously, at or below the speed limit, and follow other traffic laws. The residents are given a sticker to display on their vehicle showing they have abided to the rules of the program making the neighborhood streets safer for bicyclists, pedestrians, and drivers.

Bike Bus, Holland.
Photography by Adi Lamdani courtesy of scienceofthetime.com.



Loyal Heights Southside Bike Train, Seattle, WA.
Photography by Clint Loper courtesy of seattlebikeblog.com.



Bike-Share Initiatives

A bike-share program is a service in which bicycles can be rented for a small fee on a short-term basis. Some services may have an annual membership fee. Bicycles can be picked up and returned at any affiliated bike share station designation around the city. Public share programs address some of the primary concerns of bicycle ownership including theft, lack of parking, and required maintenance. In some instances there may be a limited amount of bikes and renting stations, therefore decreasing the availability of this alternative transportation method.

Originally, bike-share programs evolved in Amsterdam in the 60's starting with the first free bicycle program in 1964. More recent programs employ advanced technology to provide easy rental and tracking. As of April 2013 there were more than 500 bike-sharing programs around the world with more than 500,000 bicycles in 49 countries. One of the most extensive European programs is in France. Vélib' utilizes 14,500 bicycles and a system of 1,230 bicycles stations in Paris, France. Launched in 2007, the program serves almost 86,000 riders each

day and as of 2014, it was the 12th largest bike sharing program based on number of bicycles in circulation. Growth has increased considerably outside of European countries. In the United States alone there are 26 bike sharing programs and usage has doubled in 2012; this number is expected to double again within the next year or two.⁷² The combined fleet in the United States is estimated at more than 18,000 bicycles nationwide across 34 different programs. The largest program in the United States is Chicago's DIVVY with 6000 bicycles available at 580+ stations across Chicago and surrounding suburbs. These programs can take many forms like public-private partnerships, administered by government entities or non-profit organizations. The biggest bike share system in Canada is Bixi. The system was started in Montreal with over 5,000 bikes and 450 stations in that city. Later on it expanded to Ottawa/Gatineau and later to Toronto. In 2014 Bixi was bought and renamed to PBSC Urban Solutions.

Bike Share Chattanooga. Photo courtesy of news-press.com.



Chicago Mayor Rahm Emanuel on Divvy bikes. Photo courtesy of chicagotribune.com.



Slow Roll

Slow Rolls were first introduced in Detroit and Chicago and have since expanded to at least 10 cities through the United States. Slow Roll is a group bicycle ride that meets one night a week in a pre-arranged location in the city. The distances of these rides are shorter, about 6 to 10 miles (9.6 km to 16 km) long, and the pace is slow so riders can talk and enjoy the scenery as well as keep the ride safe. The Slow Rolls are targeted to everyone: all ages, all skill levels, and all types of bicycles. These rolls are free to all. Some Slow Rolls require a one-time annual registration before riding. For an example, visit Slow Roll Detroit at slowroll.bike.

Trip Reduction Incentive Programs (TRIP)

Cities, employers, and post-secondary campuses now have dedicated programs encouraging employees and students to reduce automobile travel and to use an alternate mode of transportation. The main goal of these programs is to shift vehicle transportation to walking, bicycling, and carpooling, reducing road

congestion, harmful emissions, and improving the health of employees and those around them. TRIPs are often mandated by law and may include promotions, incentives, and provision of facilities. These are often found in metropolitan areas with high levels of congestion or air quality problems. Incentives to those engaging in an alternative transportation mode other than their own motorized vehicle may be in the form of discounted bus passes, raffles, prizes, discount parking passes, discounts on carpooling or vanpooling, parking, additional monthly income, and discounts at local businesses. For more information on how to establish an incentive program visit the resource section.

TravelSmart and SmartTrips are marketing programs aimed to provide information and incentives for alternative transportation options, such as transit passes or bicycle store coupons. These programs were first implemented in Europe by SocialData and over the years they have been adopted throughout Australia and in some United States cities, with the amount of programs on the rise. One such marketing program was established in Portland, OR, to solve the issue of residents choosing single-occupancy car trips as a primary transportation mode.

Slow Roll Buffalo. Photo by John Hickey courtesy of buffalonews.com.



TravelSmart program - Highland Elementary School, Canada. Photo courtesy of The Buzzer Blog.



In 2002, the Portland Office of Transportation brought the individualized marketing program TravelSmart to the United States to reduce single-occupancy vehicle trips and in return increase walking, bicycling, transit, and carpool trips. A pilot project was conducted and after working with TravelSmart and SocialData America, the program was modified to meet the needs of Portland's residents and to reduce the initial cost. They named the program SmartTrips.

Portland's SmartTrips incorporates an innovative and highly effective individualized marketing methodology. Packets of information are hand-delivered to individuals interested in learning more about alternate transportation methods including transit, walking, bicycling, carpooling, car sharing, and multi-modal transportation options. This program has five primary goals, reducing drive-alone trips, reducing vehicle miles driven by area residents and employees, increasing the awareness and acceptability of all travel modes, increasing walking, bicycling, transit, carpooling, and car sharing trips, and increasing neighborhood mobility and livability.

Residents can order a specialized kit to obtain more information about the program in the area where they live.

The bicycling kit, Portland By Cycle, includes citywide and neighborhood bicycle maps, a Portland By Cycle guide with tips and rules of the road, Portland By Cycle ride and workshop schedules, Women on Bikes rides and clinics brochure, a personalized bicycle trip planning request postcard, a TriMet Bikes on Transit guide, a leg strap, and a 72-coupon booklet for area businesses. Additional items can also be ordered such as the Oregon Bicycling Manual containing the rules of the road, a City of Portland downtown bicycling map and other neighborhood bike maps, a Women on Bikes resource guide, and a bicycle helmet brochure.

Since the introduction of the program, the City of Portland has seen a reduction of 9% to 13% in single occupancy car trips and an increase in walking, bicycling, and transit mode shares in SmartTrips areas.

SmartTrips has also been implemented in parts of Canada. The program is supported by the Sustainable Transportation Partnership of the Central Okanagan, and made up of the city of Kelowna, City of West Kelowna, District of Peachland, District of Lake County, and Westbank First Nation.

Portland - TriMet to build fewer bike lockers and more covered bike racks at new transit stops. Photo courtesy of TriMet.



Travel Awareness Programs

Travel awareness programs also aim to reduce driving and increase use of transit, walking, and bicycling. Implemented by local governments or community organizations, the number and variety of programs in this category have been growing considerably. The In Town Without My Car! program dates back to the mid-1990s. The program aims to encourage the use of alternative forms of transportation and travel and raise awareness within the community on the long-term pollution associated with cars and other gas-powered vehicles. These programs have reportedly affected over 111 million inhabitants in 1,035 participating cities and 428 supporting cities in 2003.⁷³ Currently, travel awareness programs are more common in Europe than in the United States^{35, p. S113}

In the United States, travel awareness programs are commonly known as Car-Free Days. Every year, on September 22nd some cities and countries organize the World Car-Free Day. Washington, D.C.; Long Island, NY; and Chicago, IL; are some of the cities that have embraced the World Car-Free Day encouraging their residents to “uncar.” Long Island’s website (carfreedayli.com/) offers a downloadable Car-Free Day toolkit for

those who are looking for more information or interested in establishing the program in their community.

The first annual Car-Free Vancouver Day in Canada was held in 2008. That year, four communities presented their own car-free day: Kitsilano, West End, Main Street, and Commercial Drive. Usually organized in mid-June, the Car-Free Day is combined with a festival attracting up to 40,000 people per day. The program’s objective is to provide healthy communities, authentic cultural celebration, and car-free streets. In addition to the car-free day, Canada is planning on opening 13,700 miles (22,000 kilometers) of car-free bike highways across the country. This will make the longest network of recreational trails in the world. Construction begun in 1992 and is expected to be completed by 2017 connecting most of the major cities in Canada.

In 2016, Bogotá, Colombia celebrated their 16th anniversary of its annual Car-Free Day. In a city of 7 million people, the program that started in October 2000 removes 600,000 vehicles from the streets and opens the streets for a day to individuals for walking and biking.⁶⁹

Car-Free Day, Paris



SCHOOL INITIATIVES & BICYCLE-FOCUSED CURRICULA

For most children, their first taste of independence comes when they learn to ride a bike. Through these self-guided adventures, children can learn self-management, critical thinking, environmental consciousness, and healthy life skills. Children who ride bicycles together learn important social skills that are not present in virtual adventures or games. To assist children to obtain opportunities to ride a bike, there are a variety of programs and resources geared specifically toward youth and bicycles.

Safe Routes to School program, Santa Clara County, CA. Photo courtesy of sccgov.org.



Safe Routes to School

Safe Routes to School (SRTS) programs aim to create safe, convenient, and fun opportunities for children to bicycle and walk to and from schools. The goal is to reverse the decline in children walking and bicycling to schools, increase kids' safety and reverse the alarming nationwide trend toward childhood obesity and inactivity. More than 17,000 schools and 6.8 million students in the United States have benefited from Safe Routes to School-funded education, encouragement, infrastructure, and enforcement programs aimed at increasing the safety and number of students walking and bicycling to school.

The following are examples of projects and programs that can qualify for funding:

Infrastructure

- Street crossing safety improvements
- Other spot improvements in existing pedestrian/bikeways
- Creating new pedestrian/bikeways
- Traffic calming
- Signing
- Bicycle parking
- Lighting

Non-infrastructure

- Teacher training on SRTS
- Student education programs on SRTS
- Distribution of SRTS information to parents/families
- Crosswalk guard training
- Share the road programs

- Federal funding for Safe Routes to School, bicycling and walking is available through the “STP Setaside” program of the 2015 transportation law known as the FAST Act (Fixing America’s Surface Transportation Act). The law preserves funding for Safe Routes to School, bicycling, and walking through 2020. A few highlights on how the program operates:
- Safe Routes to School (both non-infrastructure and infrastructure), walking and bicycling projects are all eligible to compete for funding.
- Funding is allocated through a competitive process that gives local governments and schools systems the opportunity to put forward the projects that are most important to their communities.
- Funding will grow from the current level of \$819 million per year to \$835 million in 2016 and 2017 and to \$850 million in 2018 through 2020.
- State and local nonprofit organizations that work on transportation safety are eligible to compete directly for funding (joining the already-eligible local government agencies and schools/school districts).

At the local level, Safe Routes to School practitioners run education and encouragement programs with families and schools and push for strong municipal and district policies to support safe walking and bicycling. At the regional and state level, Safe Routes to School practitioners work to find new funding and ensure proper spending of existing funding for Safe Routes to School.

Interested in getting started locally? Safe Routes to School programs often start with one or two champions who initiate

and manage the process in their school or community. The Safe Routes to School National Partnership offers information, resources, and tips on getting started in your community: saferoutespartnership.org.

Other Youth-Focused Bicycle Programs

There are other programs and funding sources that can help provide youth with opportunities to ride a bicycle.

YES, Inc. offers programming to help educational institutions introduce bicycling as a sport/competition. Their philosophy centers on creating an annual physical education unit in secondary schools to encourage youth to incorporate cycling into their daily activities. They also strive to show bicycling as a competitive sport, as well as a practical form of transportation.

The International Bike Fund offers several resources to assist community groups in advancing bicycle programs, from startup guides for people interested in setting up a youth bicycle recycling program, to bicycle driver training and maintenance programs.

SHAPE America and the National Highway Traffic Safety Administration partnered to create, implement, and evaluate a nationwide bicycle safety curriculum that teachers and school recreation professionals can use to teach safe bicycling practices to school age children. Called Bikeology, the program is a ready-to-use safety curriculum aligned with the National Standards for K-12 Physical Education and includes lessons and assessments critical to bicycle safety. The program includes a guide to share with parents, so they can support their children’s safety, and hopefully get interested in bicycling as a family activity.

Mini Grants awarded in Michigan allow communities to ease their way into the Safe Routes to School movement by building a culture of walking and biking.
Photo courtesy of saferoutesmichigan.org/bike-to-school-day



Training and Education

Ideally, children would learn to ride and appreciate biking at a young age. In Germany, Denmark, and the Netherlands most children in the 4th grade complete a course that includes both classroom and road lessons on safe bicycling. These lessons get children off to a great start in building a lifetime of safe bicycling skills.

In the United States, several well-known associations provide similar services. At the city level, San Francisco's Bicycle Coalition offers several classes: Adult Learn-To-Ride, Introduction to Urban Bicycling, Traffic Skills 101, youth and family classes, and a freedom from training wheels class geared towards helping children learn how to ride confidently and comfortably on two wheels.

Education and training is also offered by select organizations in cities across the United States. For example, Bike New York, a non-profit organization whose mission is to facilitate and promote bicycling in different areas of New York City, offers free classes year-round titled: Learn to Ride – Adults, Learn to Ride – Kids, Bicycling Basics, Bike Drivers Ed, Savvy Cyclist, How to Buy a Bike, Winter Riding 101, Commuting 101, Bike Maintenance, and Street Skills.

MassBike, a non-profit organization within the Massachusetts Bicycle Coalition, offers on-bike and classroom lessons. The Basics of Better Biking class is designed to get adults back into bicycling by improving skills on how to ride effectively and safely. This outside class is a four-hour weekend session. The Biking for Everyone Workshop provides different topics for people who already know how to ride but would like to start using their bikes for commuting. Lastly, they offer Child Bicycle Safety Education, which is federally-funded through Safe Routes to School (SRTS). This class offers children, parents, and community members information about the value of walking and bicycling to and from school.

In Oregon, the Bicycle Transportation Alliance (BTA) offers Walk+Bike education programs. They have an array of programs for students and training for teachers. Their programs are designed to bring education services to students and to train teachers on how to encourage their students and their families to walk and bike to school. They even customize programs to fit the school or district.

Child Cycle Training - Swinton Fitzwilliam Primary School, UK. Photo courtesy of swintonfitzwilliam.org.



The Bicycle Coalition of Maine holds bicycle and pedestrian education sessions on the safe use of transportation infrastructure to improve safety and reduce cycling-related injuries and deaths. They serve 10,000 children and adults annually. Their classes can be taken in-person or by accessing instructional videos on their webpage.

The League of American Bicyclists has been offering bicycling classes since the late 1970s. Most state and local bicycling education programs can be traced back to the League's education programs. Currently, they offer Smart Cycling Tips, Rules of the Road, and educational videos to individuals who are unable to personally attend a class. Their League Cycling Instructors (LCI) certifies trainers to teach classes to adults and children. The curriculum includes the following classes: Traffic Skills 101, Traffic Skills 201, Group Riding, Commuting, Bicycling 123 Youth, Bicycling 123, and Safe Routes to School.

The Pedestrian and Bicycle Information Center founded by the United States Department of Transportation Federal Highway Administration and housed within the University of North Carolina (UNC) Highway Safety Research Center in Chapel Hill, NC helps to inform and reinforce the skills needed to be a safe pedestrian and bicyclist. Through their website they provide information on how to educate pedestrians and cyclists of different ages.

To locate additional resources per state, there is a wiki listing, while by no means complete, can help direct readers to bicycle advocacy groups in their state.

Cyclists-in-training hone their skills at Santa Monica's Bicycle Campus. Photo by Mihai Peteu courtesy of santamonicanext.org.



POLICY AND FUNDING: TURNING ADVOCACY INTO ACTION

It is obvious to those passionate about cycling that bicycle infrastructure policy needs to change in order to give ridership a boost and help bicycling grow in the United States. We need to act, communicate, and use resources to ensure that legislative bodies understand the importance of bicycling so that we have safe access for all bicyclists, and that it is easy for people to bike to work, to shop, and for enjoyment. To ensure a broader-brush approach to bicycle infrastructure we need to help city planners, transportation planners, master planners, and architects consider bicycles in their work. We need to create alliances and new champions in city staff, the general public, and elected officials who will help to push bicycling forward for every community to enjoy and benefit from. A variety of legislative and funding resources can help communities prioritize their advocacy efforts for bicycling.

Bicycle infrastructure increases the livability and environmental sustainability for the residences in the community. Riverwalk Way - Chattanooga, TN. Photography by Darcy Kiefel.



LEGISLATIVE RELEVANCE

Effective legislation interventions affect government policies. While legislation may differ depending on the locale, the quality of the legislation is what ultimately will achieve the desired outcome. What follows are examples of legislation that has proactively supported bicycling as a transportation mode. New legislative and funding sources are continually evolving. Refer to the Resources section for more information.

States Department of Transportation – Federal Highway Administration / Bicycle and Pedestrian Guidance

Utilize this resource for state and local governments to support the implementation of best practices. It includes documents explaining the need for mainstream bicycling and walking in planning, design, and operations. There is also information about central location laws, policies, and guidance about the Federal-aid Highway Program (FAHP), and information on the Title II of the Americans with Disabilities Act requirements to provide curb ramps, when infrastructure is altered through resurfacing.

The League of American Bicyclists – Model Legislation

The League's legal affairs committee, made up of bicycle lawyers from across the country, is working to create model legislation that can be used to improve bicyclists' safety and comfort in every community. In the summer of 2012, the committee completed a model Vulnerable Road User law.

National Highway Traffic Safety Administration – Resources Guide on Laws Related to Pedestrian and Bicycle Safety

From time to time, highway safety professionals and others have requested information from the National Highway Traffic Safety Administration (NHTSA) about the safety benefits to pedestrians and bicyclists of specific state and local laws. To fulfill these requests, NHTSA developed an annotated database of existing and model laws related to pedestrian and bicyclist safety.

Cultural Trail, Indianapolis, IN. Photography by Kelley Jordan courtesy of indyculturaltrail.org.

The Indianapolis Cultural Trail has brought a significant increase in pedestrian and bicycle traffic to downtown Indianapolis as people of all ages and abilities have embraced the trail. Photo courtesy of pedbikeinfo.org.



FEDERAL TRANSPORTATION FUNDING

Riverwalk at Coolidge Park, Chattanooga, TN is one of the projects in Tennessee funded by the Transportation Alternatives Program. Photo courtesy of Chattanooga CVB.



Bicycle and pedestrian projects are broadly eligible for funding from major federal-aid highway, transit, safety, and other programs. Bicycle projects must be “principally for transportation, rather than recreation purposes” and must be designed and located pursuant to the transportation plans required of States and Metropolitan Planning Organizations.

The Federal Highway Administration (FHWA) funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including Interstate highways as stated in *23 USC Section 217 (b)*.

In general, the Federal share of the costs of transportation projects is 80% with a 20% state or local match. However, there are several exceptions to this rule and are as follows:

- Federal Lands Highway projects and Section 402 Highway Safety funds are 100% federally funded.
- Bicycle-related transit enhancement activities are 95% federally funded.
- Hazard elimination projects are 90% federally funded. Bicycle-related transit projects (other than transit enhancement activities) may be up to 90% federally funded.
- Individual transportation enhancement activity projects under the Surface Transportation Program (STP) can have a match higher or lower than 80%. However, the overall federal share of each state’s transportation enhancement program must be 80%.
- States with higher percentages of federal lands have higher federal shares calculated in proportion to their percentage of federal lands.
- The state and/or local funds used to match federal-aid highway projects may include in-kind contributions (such as donations). Funds from other federal programs may also be used to match transportation enhancement, scenic byways, and recreational trails program funds. A federal agency project sponsor may provide matching funds to recreational trails funds provided the federal share does not exceed 95%.

Transportation Alternatives Program (TAP)

The TAP provides funding for programs and projects defined as transportation alternatives, including on-and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, environmental mitigation, recreational trail program projects, Safe Routes to School projects, and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former interstate system routes or other divided highways.

The TAP was authorized under Section 1122 of Moving Ahead for Progress in the 21st Century Act (MAP-21) and is codified at 23 United States sections 213(b), and 101(a) (29). Section 1122 provides for the reservation of funds apportioned to a state under section 104(b) of title 23 to carry out the TAP. The national total reserved for the TAP is equal to 2% of the total amount authorized from the highway account of the highway trust fund for federal-aid highways each fiscal year as stated in 23 USC 213(a).

Highway Safety Improvement Program (HSIP)

The goal of the program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on indigenous lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance.

The specific provisions pertaining to the HSIP are defined in Section 1112 of MAP-21, which amended Section 148 of Title 23, United States Code (23 USC 148). Some of the changes to the HSIP include:

- The strategic highway safety plans are required to be updated and evaluated regularly by each state.
- A new High Risk Rural Roads (HRRR) special rule will require states to obligate funds on HRRRs if the fatality rate is increasing on rural roads.

- The transparency reports (5%) are no longer required.
- The annual reports from the states will be posted on FHWA's website.
- FHWA is required to establish measures for the states to use in assessing the number and rate of fatalities and serious injuries.

Pedestrian and bicyclist safety remain priority areas for State and Community Highway Safety Grants funded by the Section 402 formula grant program. A state is eligible for these grants by submitting a Performance Plan (establishing goals and performance measures for improving highway safety) and a Highway Safety Plan (describing activities to achieve those goals) as stated in 23 USC 402.

Research, development, demonstrations, and training to improve highway safety (including bicycle and pedestrian safety) is carried out under the Highway Safety Research and Development (Section 403) program as stated in 23 USC 403.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use as stated in 23 USC 217 (a).

Surface Transportation Program (STP)

Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use and walking. TEA-21 added "the modification of public sidewalks to comply with the Americans with Disabilities Act" is an activity that is specifically eligible for the use of these funds as stated in 23 USC 217 (a).

Ten percent of each state's annual STP funds are set-aside for Transportation Enhancement Activities (TEAs). The law provides a specific list of activities that are

eligible TEAs and this includes “provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists,” and the “preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)” as stated in 23 USC 109 (a)(35).

Another 10% of each state’s STP funds is set aside for the Hazard Elimination and Railway-Highway Crossing Programs, which address bicycle and pedestrian safety issues. Each state is required to implement a Hazard Elimination Program to identify and correct locations that may constitute a danger to motorists, bicyclists, and pedestrians. Funds may be used for activities including a survey of hazardous locations and for projects on any publicly owned bicycle or pedestrian pathway or trail, or any safety-related traffic calming measure. Improvements to railway-highway crossings “shall take into account bicycle safety” as stated in 23 USC 152.

Federal Lands Access Program (FLAP)

The Federal Lands Access Program was established to improve transportation facilities that provide access to, are adjacent to, or are located within federal lands. FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators as stated in 23 USC 204.

The program is designed to provide flexibility for a wide range of transportation projects in the 50 states, the District of Columbia, and Puerto Rico.

FLAP is funded by contract authority from the Highway Trust Fund. Funds are subject to the overall Federal-aid obligation limitation. Funds will be allocated among the states using a new statutory formula based on road mileage, number of bridges, land area, and visitation.

Recreational Trails Program (RTP)

Funds may be used for all kinds of trail projects. Of the funds apportioned to a state, 30% must be used for motorized trail uses, 30% for non-motorized trail uses, and 40% for diverse trail uses (any combination) as stated in

23 USC 206.

Provisions for pedestrians and bicyclists are eligible under the various categories of the Federal Lands Highway Program in conjunction with roads, highways, and parkways. Priority for funding projects is determined by the appropriate Federal Land Agency or Tribal government as stated in 23 USC 204.

Federal Transit Programs

Title 49 USC as amended by the Transportation Equity Act for the 21st Century (TEA-21) allows the Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in “pedestrian and bicycle access to a mass transportation facility” that establishes or enhances coordination between mass transportation and other transportation as stated in 49 USC 5307.

TEA-21 also created a Transit Enhancement Activity program with 1% of Urbanized Area Formula Grant funds designated for, among other things, pedestrian access and walkways, and “bicycle access, including bicycle storage facilities and installing equipment for transporting bicycles on mass transportation vehicles” as stated in 49 USC 5307(k).

Health Funding Programs

There are different programs related to health funding that focus on adult health, prevention, and awareness. The Center for Disease Control (CDC) program called State Public Health Actions includes community strategies that focus on adults and supports work in state and large city health departments to prevent obesity, diabetes, heart disease, and stroke through two main components:

- Community strategies are focused particularly on those at high risk, to prevent diabetes, heart disease, and stroke.
- Health system interventions link community programs to clinical services and aim to improve healthcare and preventive services to populations with the largest disparities in high blood pressure and pre-diabetes.

The Partnerships to Improve Community Health (PICH) funding program uses evidence- and practice-based strategies for individuals and communities to make informed decisions about their health. Awardees will use public health strategies to reduce tobacco use, improve nutrition, increase physical activity, and improve access to disease prevention, risk reduction, and management. Of a total of 39 awards, 31 state physical activity through bicycling and walking as a means to reduce the stated public health concerns.

Another interesting funding source is the Racial and Ethnic Approaches to Community Health (REACH), a CDC program that builds capacity and implements policy and environmental improvements in racial and ethnic communities experiencing health disparities. Many of the awards given by REACH included the goal of increasing physical activity as a means of implementing community design components such as Safe Routes to School, and increasing access to local parks and schools through joint-use agreements.

TIGER Discretionary Grants

The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit, and port projects that promise to achieve critical national objectives. Since 2009, Congress has dedicated more than \$4.1 billion for six rounds to fund projects that have a significant impact on the nation, a region, or a metropolitan area.

The TIGER program enables DOT to examine a broad array of projects on their merits, to help ensure that taxpayers are getting the highest value for every dollar invested. In each round of TIGER, DOT receives many applications to build and repair critical pieces of freight and passenger transportation networks. Applicants must detail the benefits their project would deliver for five long-term outcomes: safety, economic competitiveness, state of good repair, livability, and environmental sustainability.

National Scenic Byways Program

The Byways are a collection of 150 different and diverse roads designated as such by the United States Secretary of Transportation and includes the National Scenic Byways and All-American roads. Funds may be used for “construction along a scenic byway of a facility for pedestrians and bicyclists” as stated in 23 USC 162 (c)(4).

Urbanized Area Formula Grants

The Urbanized Area Formula Funding (49 U.S.C. 5307) provides federal resources to urbanized areas and to governors of the transit capital and operation assistance in urbanized areas and for related transportation planning. An urbanized area is referred to an area with a population of 50,000 inhabitants or more.

Formula Grants for Rural Areas Program

The Formula Grants for Rural Areas (49 U.S.C. 5311) program provides capital, planning, and operating aid to different states to support their public transportation infrastructure in rural areas with a population of less than 50,000 individuals, where most of the population relies on public transportation. It also provides funding for state and national training and assistance through the Rural Transportation Assistant Program.

FUNDRAISING & FRIEND-RAISING

Bike the Drive 2014 - Chicago, IL. Photography by Chuck Berman courtesy of Chicago Tribune.



Organized bicycling events or rides can play a critical role in raising awareness, cultivating champions, and generating resources to fund such initiatives. For instance, events may consist of a ride to generate income for a specific organization or cause. Depending on need, there are many different fundraising rides that can be planned. Single-day event rides may range from 5 miles to more than 100 miles and have different length rides within the event to accommodate riders of different abilities. Multi-day events may range from as little as 25 miles to more than 100 miles a day where individuals or teams participate. Time trials are timed races where individuals or teams compete against each other. These timed rides may range from 10 to 30 miles and usually last a single day. Even though these events may be well-funded with sponsorships and other fees, it is possibly the least used fundraising event. Regardless of the type of event, fundraisers usually charge a participation fee and

encourage participants' family, friends, and coworkers to pledge donations.

Organizing a successful fundraising event takes organization, adequate time, resources, and participation to make the event worthwhile. Planning is essential for the recruitment of volunteers, riders, sponsors, and to raise money; funds raised will vary from event to event depending on expenses. The Five Borough Bike Tour is the world's largest charitable bike ride, with the proceeds funding free bike education programs. A recent event, sponsored by TD Bank and in partnership with Bike New York, hosted 32,000 bicyclists. Held the first Sunday in May, the route takes participants on a 10-mile (64 km) ride through New York's boroughs and across five bridges. The route, usually unavailable to bicyclists, is closed to all automobile traffic for the event.

Active Transportation Alliance's (formerly known as Chicagoland Bicycle Federation) "Bike the Drive" event usually hosts 20,000 participants generating \$350,000 in donations (activetrans.org). An event like this does not happen overnight. Bike the Drive is a well-established event launched in 2002 that raises funds to support the expansion of Chicago's bicycle transportation network, to promote bicycling, to improve conditions, and to provide resources and support for bicyclists. A smaller scale event, sponsored by the Bicycle Coalition of Maine (bikemaine.org), is "Time Trial." Their net, after all expenses are paid, is typically around \$1,500, however they only accept 60 riders and invest about \$500 in organization fees. It is clear that there is a wide range of opportunities that can be equally successful depending on the needs, available time, and the people and funds available to organize it.

The following fundraising techniques were developed by the National MS Society, Greater Delaware Valley Chapter (nationalmssociety.org/Chapters/PAE) for BikeMS events. These tips could be used on a variety of bike fundraising programs:

- **Online Fundraising** - This is a quick and easy way to fundraise. Set up your account and send "sponsor me e-mails" to your list of potential sponsors.
- **Letter Campaign** - Use pre-written letters, or create one of your own, and send them to all of your friends, family, and co-workers.
- **Corporate Matching Gift** - Ask your company to match the amount of pledges you receive from your fellow co-workers.
- **Other Donors' Matching Gifts** - Ask your sponsors if their companies match pledges.
- **Corporate Sponsorship** - Identify one or several large companies and contact them directly (they may be willing to sponsor you completely).
- **Paper Wheels** - Sell Paper Wheels. Take them to the local stores, restaurants, banks, etc. and see if they will sell them for a week or two. All money raised goes towards your fundraising!
- **Fundraising dinner at your local favorite restaurant** - Ask your favorite local restaurant to host a fundraising dinner to benefit the event. Have them donate a certain percentage of the night's total proceeds. Use posters to advertise this night. Make sure your team, friends, and family know about it.
- **Dress Down Day** - This is usually a successful fundraising tool! Ask your company if they will allow those who donate to wear jeans on a designated day (usually Fridays). Send out an e-mail to your staff notifying them. Have everyone pay \$5 to dress down, and put all of the money towards your fundraising.
- **Desk Drop** - Get a box of individually packaged cookies. Make up little business cards with your team information on it and directions on how to sponsor you. Attach the card to the cookies and drop one on the desks of co-workers. It is even better when you see co-workers personally so you can tell them about your efforts and what you are doing.
- **Website** - Create your own personal web page about your journey. Send an e-mail to everyone on your contact list and invite them to visit the website.

Friends and sponsors are very important to any fundraising event since they are the ones who bring extra monetary support to organize it and make it successful. However, courting and securing sponsors may be one of the most difficult jobs. Start by creating a list of potential supporters in the community. This may include bike shops, community groups, environmentally focused organizations, local media, health care organizations, and other businesses that have a history of supporting local causes. Ask others involved in organizing the fundraising ride if they can think of anyone else they have worked with in the past. Sponsors do not necessarily need to support the cause monetarily; they could provide their in-kind services at no-cost (e.g., printed material).

LEGAL CONSIDERATIONS

Bicycling, while beneficial in so many ways, can be adversely affected by careless drivers, road conditions, and other potential hazards. Understanding bike laws in each state can help promote a fun, safe trip by bicycle. The League of American Bicyclists has compiled a list of laws by state that address helmets, passing laws, distracted driving laws, vulnerable road user laws, and many other guidelines and requirements to help ensure safe bicycling. Their information and research can be found at bikeleague.org/StateBikeLaws.

Bike laws help keep everyone safe on the trip while having bicycling fun. Photography by Brian W. Knight courtesy of The Alliance for Biking and Walking.



Helmet Laws

While bicycle helmet laws have been controversial, helmets can help prevent head injuries in the case of falls or crashes. However, helmet laws have been shown to reduce bicycling as a mode of alternative transportation.³¹ Helmet laws require cyclists of specific ages (e.g., under 16 years old in the State of North Carolina) to wear helmets. These laws are specific to the state where people ride. In the United States, helmet laws were first adopted in 1987 by state and local governments. At the time of this publication, 21 states including the District of Columbia, have state-wide helmet laws, and more than 201 localities have local ordinances; these only apply to riders 16 years old or younger. Only 13 states have no state or local helmet laws at all (Arkansas, Colorado, Idaho, Indiana, Iowa, Minnesota, Nebraska, North Dakota, South Dakota, South Carolina, Utah, Vermont, and Wyoming).⁷⁰ The Bicycle Helmet Safety Institute has specific information

on each state. In Australia, helmets are required in all states and territories while in European countries helmets are generally not required. In Canada, the use of bicycle helmets varies throughout the country depending on province and territory.

Guidelines and Ordinances

Many cities and communities already have bike parking guidelines, ordinances, and bike rack cost-share programs. Information regarding bike parking capacity, placement, and right-of-way can also be found by checking the community's website. Usually, bike parking information may be found within a city's public works or parks and recreation department.

Bicycle advocacy organizations can also be a resource when looking for advice and can usually be found online by searching "*state name bicycle advocacy*."

State Bike Laws

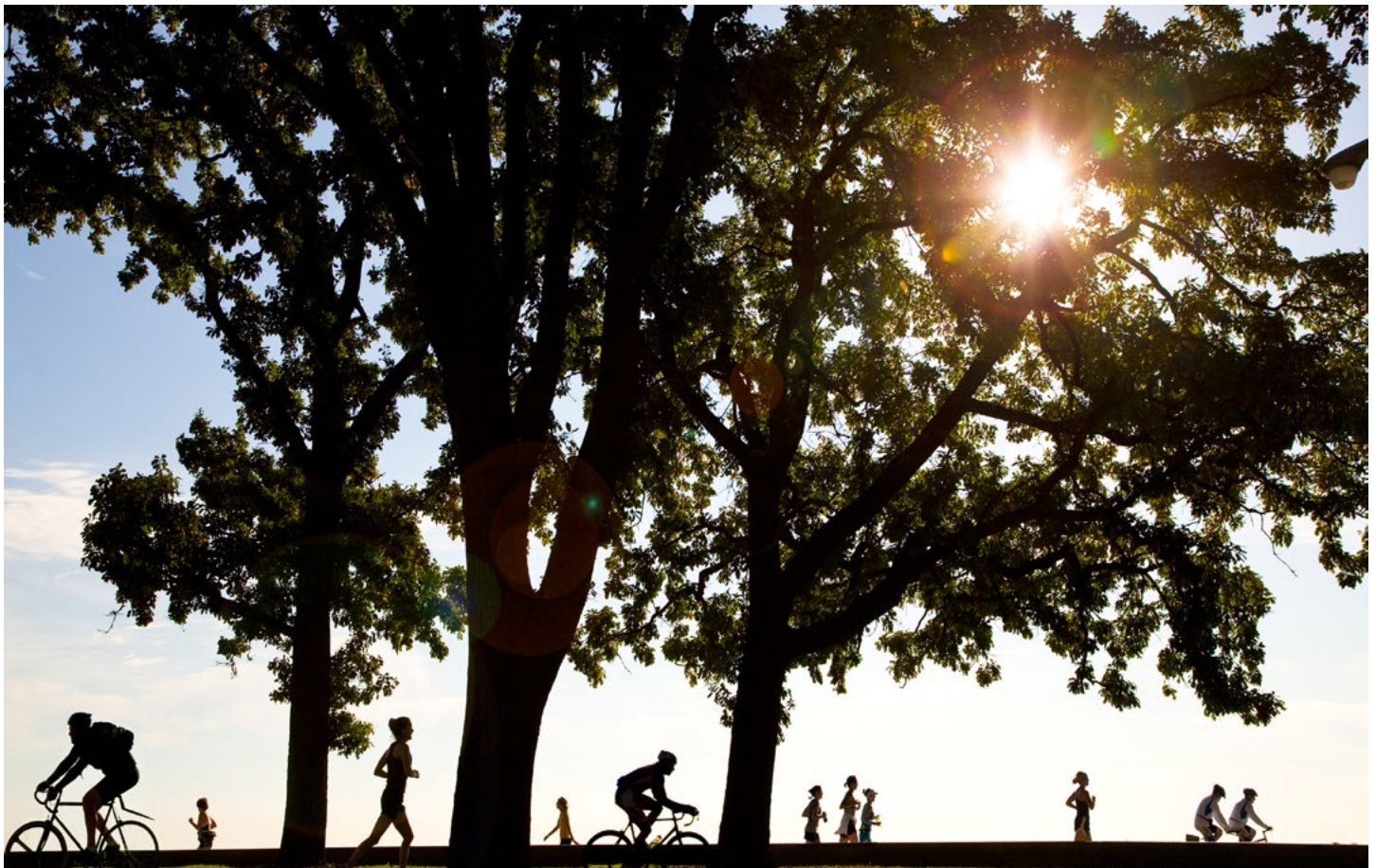
Many advocates have fought hard for the rights of bicycle riders and their right to use the roads. They have moved the agenda forward to make sure that traffic law accommodates people on bikes and other multi-modal types of transportation. The League of American Bicyclists has put together a resource to help understand bicycling laws and to connect legal counselors to advocates who are working to have better laws. This resource also highlights areas of law that decreases the risk and conflict between bicycles and motor vehicles. The resource is divided by state as each of the laws differ from one state to another. Some of the topics covered are helmet laws, safe passing laws, where to ride, Share the Road license plates, and sidewalk riding to name a few.⁷⁵ As in the

United States, Canada also has bicycling safety laws. For example, the Ministry of Transportation in Ontario created a webpage that shares information with bicyclists including the rules of the road, helmet information, and safety tips for cyclists of all ages.

Traffic Laws

In the United States and Canada, all bike riders are to follow the same laws as other drivers do while riding in the streets. According to the United States traffic laws, some of these include ride on the right; first come, first serve; speed positioning; intersection positioning; and follow the street signs, signals, and markings as any other vehicle would.

Walk, Ride, Run.
Photo courtesy of The Alliance for Biking and Walking flickr.



CALL TO ACTION:

ADVOCACY & IMPLEMENTATION

The benefits of biking are extensive; it benefits people's health and fitness, promotes societal and community capital, provides economic benefits to the area, enhances the transportation alternatives individuals can choose, and protects the environment, just to name a few. For more information on how to make the connections between active transportation, to strengthen the advocacy network, increase the efforts to support bicycling and walking, promote data collection, and evaluate your results, visit the Alliance for Biking and Walking 2016 Benchmarking Report,¹³ and join us in creating more bike-friendly communities by taking these steps:

- **Create great community connectivity:** It is our responsibility to connect our communities and cities by redistributing space in a more equitable way. For some individuals, mostly children and youth, and for many older adults, bicycling is the only accessible transportation modality. Therefore, we need to provide a variety of opportunities to move safely around our communities beyond cars. Investment in active transportation is essential in creating a healthy and economically prosperous community.
- **Know and make the case:** It is our responsibility to advocate and show others the many benefits of bicycling. We know that bicycling outdoors promotes cardiovascular health, social opportunities, the ability to enjoy the environment, and that it can be enjoyed by individuals of all fitness levels. Besides the many benefits of bicycling, we should address equity and inclusion by appealing to the widest group of people, including people of all ages, abilities, ethnicities, genders, and socioeconomic groups. We need to provide individuals and communities with the infrastructure needed for everyone to enjoy the many benefits of bicycling.
- **Embrace cycling as an alternative transportation method:** It is our responsibility to advocate for active transportation including bicycling and walking for shopping and going to work or school. Moving bicycling forward as a means of mainstream transportation facilitates more equitable infrastructure and leads to increased use. This effort may include wider curb lanes, protected on- and off-street bike lanes on arterial roads, parking, and in some cases offering showers at the workplace. We should advocate for all city or town master plans to include bike infrastructure as an integral part of daily life. This will ensure that bicycle infrastructure is planned to serve all riders regardless of abilities.
- **Mobilize the community and properly plan infrastructure:** It is our responsibility to advocate for planning bike-friendly communities that will provide opportunities to different populations while offering educational and promotional programs to everyone in the community. A bicycle-friendly community supports and encourages bicycling by providing the necessary biking infrastructure and policy that supports such initiatives. The result is a better community that becomes a better place to live, it raises the quality of life for the population, improves health outcomes, reduces overall congestion, provides other transportation alternatives, and increases social connectivity.
- **Advocate for bicycle infrastructure policies:** Policy needs to change in order to increase ridership. We need to communicate and act for legislation to be approved; this legislation will make it safer for all riders to bike for pleasure, to work, and to shop. Create alliances with city staff, the general public, and elected officials that will help move the importance of cycling to the forefront.



SHARE YOUR SUCCESS.

We are inspired by the many community champions and advocates that are bringing bicycling to the forefront and we are equally focused on the meaningful outcomes that are being realized. Do you have a bicycling initiative in your community? Would you like to initiate a movement in your community to promote bicycling? Let us hear from you! We would love to highlight your story along with our stellar case studies in this guidebook. This will help us connect to each other to make bicycling an even bigger priority in each of our communities.

Visit playcore.com/ShiftIntoGear for more information.



Kidical Mass 2. Photo by Barry Lewis courtesy of The Alliance for Biking and Walking flickr.

CASE STUDIES: CELEBRATING COMMUNITIES MAKING THE CASE FOR BICYCLING

Planning our cities in a way that encourages people to ride bicycles just makes sense. The research is clear, bicycling is a key ingredient to creating sustainable cities that promote healthy lifestyles and economic vitality. There are many great examples of cities that have embraced the bicycle as a truly mainstream form of urban transportation, and have shared their stories with us. Help us celebrate the progress being made and connect and build happier, healthier communities through bicycling advocacy and implementation, and continue to inspire others by sharing your story.



FEATURED CASE STUDY COMMUNITIES:

Pittsburgh, PA

Pittsburgh's Bike Parking Regulations Impact Private Development

Cochrane, ON

DIY Bike Sharing in Rural Ontario

Wilmington, DE

Adaptive Cycling

Chicago, IL

Open Streets: Transforming Neighborhoods into Play Spaces

Philadelphia, PA

Catalyzing Trail Development through Grant Funding

Galax, VA

Rural Virginia Community Rediscovered the Joy of Bike Riding

Macon, GA

Building the World's Largest Pop-Up Bike Network

Boulder, CO

Managing and Growing a Commuter Program

Long Beach, CA

Infrastructure Investment Promotes Impressive Growth in Participation and Ridership

Fayetteville, AR

Linking Communities through the Razorback Regional Greenway

Vancouver BC

Parklets Creating Recreation Spaces in the Midst of Urban Density

Decatur, GA

Silver Spokes for Senior Folks

Memphis, TN

Connecting People and Improving Quality of Life through the Wolf River Greenway

Fair Oaks, CA

Powering Up for Health and Physical Activity with Bikes at Will Rogers Middle School

Chattanooga, TN

Public-Private Partnerships Success in Chattanooga

CASE STUDY:

Pittsburgh's Bike Parking Regulations Impact Private Development



OpenStreets PGH, May 2016. Photo by Emily Walley courtesy of BikePGH.

Contributed by **Corey Layman**

Many cities are still without bike parking regulations, and when they do have them, they are often onerous. This case study examines Pittsburgh's Bike Parking ordinance passed unanimously by the City Council in March 2010. The ordinance was an amendment to the zoning code requiring that all new and change-in-use buildings include bicycle parking.

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The point is to encourage people to bike instead of drive. The city is trying to be a front-runner.

Steve Patchan
Pittsburgh's Bike/Ped Coordinator

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The impetus for the ordinance was an initiative taken by BikePGH with the involvement of Mayor Ravenstahl; it then became a priority project to Stephen Patchan – Pittsburgh's Bike/Ped Coordinator, who joined forces with Corey Layman, a bicyclist himself working for the city's zoning division. Corey became the lead on drafting the ordinance with the help of Stephen and Kate Rakus from City Planning.

Although the existing legislation was not as progressive as some cities, it borrowed from San Francisco's highly regarded model and captured notable gains that satisfied local advocates. According to Mr. Layman, the goal was to create legislation that was consistent and predictable, not onerous at the expense of creativity and design, as simple to administer as possible, and easy for people to understand. Particular attention was paid to bike parking location to assure it was conveniently placed and that it met certain safety standards. He did not want to craft legislation that was overly aggressive for Pittsburgh's political climate.

Crafting the ordinance took about three months and another two months to work closely with architects to do scenario testing. The team used recent plans of various scales to assess how the ordinance would unfold. Once the ordinance was ready for the public process, it took another three to four months between Planning Commission meetings, addressing public perception that it would take away car parking, and helping public officials interpret zoning language.

Pittsburgh's ordinance has two key strategies. The first is a schedule related to the commercial floor area. The building's size, not car parking – a strategy known as decoupling – dictates how much bike parking would be required. Secondly, the strategy provided an opportunity to reduce car parking requirements if the bike parking minimums were exceeded, a flexible stipulation that works in favor of developers.

BikePGH researched best practices, encouraged supporters to attend public meetings, and coordinated well with the team crafting the legislation, making sure everyone's message was consistent. It may seem like an obvious strategy however, there are plenty of examples of ordinances pertaining to the urban landscape where advocates seem to complicate matters to the detriment of their objectives. For example, at one meeting a citizen protested that the bike parking specifications in the ordinance would not accommodate all bicycles conveniently, such as the recumbent tandem he rode with his partner. This objection nearly stalled the process for months, if not years.

Using benchmarking tactics, consulting with a wide variety of architects who would be impacted by the legislation, and running the prospective legislation through a range of scenarios helped visualize and demonstrate how things could develop in a real-world setting.

At the hearing for the new ordinance, City Council expressed concern that developers might try to take advantage of the option to trade up to 30% car parking for bike parking. Mr. Layman explained that the clause would be mostly used by smaller developers who were looking for flexibility when working on lots or buildings with a small footprint and small requirement; larger developments, he told them, would base their decision on market forces. The response unfolded as predicted.

Crucial contributions for ordinances in Pittsburgh included clear and high standards for location, quality, safety considerations, and prioritization. The most valuable lessons learned during the process was to test ordinances in existing developments before implementing the new ones so that various stakeholders could be educated on the implications in real-life scenarios. The team agreed that if a model for standards and definitions in crafting the legislation had already been available, it would have helped the process greatly.

The legislation has been very successful in helping to increase bike parking dramatically in Pittsburgh's private developments and it has helped transform the city's culture to more widely accept bicycles. The legislation has helped make architects, developers, contractors, and building owners and managers more sensitive to the needs of customers and employees who ride bikes as their means of transportation.

Public employees, advocates, and businesses play an important role in making things happen. The advocate's key role is often to organize the community, but they must play that hand judiciously with allies in other sectors, working in unison; learning from stumbling blocks, having patience, and being determined every step of the way.

CASE STUDY:

DIY Bike Sharing in Rural Ontario



Cochrane Bike Share project. Photo courtesy of 880cities.org.

Contributed by Ryan O'Connor

Public bike share programs aren't just for large cities with big budgets. For proof, look no further than Cochrane, a small town of 6,000 people in northern Ontario. Better known for its polar bear habitat than bike-friendly programs, Cochrane launched a free public bike share system to encourage more people to adopt a two-wheeled lifestyle. Total material cost to implement the system? About \$100 for colorful paint. Here's how they did it.

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These are free bikes and they're not locked. If you need a bike to get somewhere, by all means jump on a bike. We want people to exercise and be healthy. That's the whole idea behind the program.

J.P. Ouellette
CAO, Town of Cochrane

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In the winter of 2014, the Town of Cochrane was selected to participate in the Doable Neighbourhood Project (DNP). The DNP was funded through a provincial grant and led by 880 Cities, a Toronto-based non-profit organization that helps create people-friendly cities. During an inclusive community engagement process, residents expressed a desire for better bicycle infrastructure but felt that cycling just wasn't part of the town's culture. J.P. Ouellette, the Town of Cochrane's Chief Administrative Officer (CAO), believed that if every resident had access to a bicycle,

then people would ride. So he approached the Ontario Provincial Police, who agreed to donate some stolen bicycles that had been recovered and would normally be sold at auction.

With the support of 880 Cities and the local Doable Neighbourhood Committee, Ouellette then invited the local high school to contribute. Students repaired the bikes and painted them bright colors to ensure they were visible and identifiable. They fixed signs onto existing bike racks at key destinations throughout town to explain the program and identify drop-off locations. Liability waivers were attached to each bike, and the town's two staff mechanics provided ongoing maintenance. After everything was in place, they left the bikes unlocked in the racks and waited for people to take a ride.

The program was an instant success. The 30 bikes were in constant use throughout the summer, clearly proving the pent-up demand for cycling programs. Of course, there were a few hiccups along the way. Some participants failed to return the bikes to one of the five stations, opting instead to leave them in front yards or along sidewalks. But a small group of residents picked up the slack by voluntarily throwing the bikes into the back of their pick-up trucks and returning them to the designated racks. Along the way, many of the bikes went missing entirely. At the end of the summer, the town was left with about 20 usable bikes, but Ouellette didn't see the missing bikes as a problem. He stated, "Our perspective is at the end of the

day it's costing us nothing and if we've put kids on bikes, well that's not a bad thing."

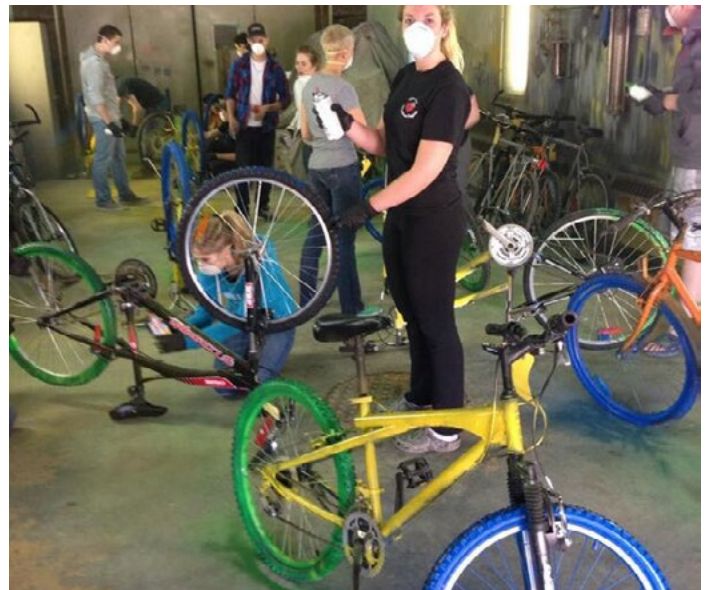
The bikes were packed away for Cochrane's long winter, but the program returned in the summer of 2015. The town has now applied for funding to expand the program into neighboring communities. In addition to the bike share program, town staff and volunteers installed a pop-up piano, free little libraries, and even a public slip 'n slide leading into Commando Lake in the center of town. In the future, the Doable Neighbourhood Committee plans to launch a new pedestrian and cycling wayfinding system, and implement new beautification and placemaking efforts along the main commercial street.

Despite its small size and remote location, Cochrane demonstrated what a community can achieve with the right leadership and a willingness to experiment with creative solutions. Through its tiny public bike share program, Cochrane lived up to its town slogan, "Wonderfully Unexpected."

"This project can be easily replicated in any small town or city. Every community has a police department and unclaimed bicycles that could be utilized. It is quite doable." – J.P. Ouellette

More information: Interview with J.P. Ouellette: vimeo.com/107879095

Globe & Mail on Cochrane DNP True Bike Share project with Google bikes. Photo courtesy of talktimmins.com (Left). The Doable City Twitter (Right).



CASE STUDY:

Adaptive Cycling



The Copher Family. Photo courtesy of prestonmarch.org.

Contributed by Deb Buenaga

Preston's March for Energy (PMFE) was incorporated in Wilmington, DE in 2011 when founders, Deb and Steve Buenaga saw a need for adaptive bikes. Their son, Preston, a young man with Mitochondrial Disease, received his first adaptive bike from a fundraiser. Deb and Steve realized the impact an adaptive bike had on Preston's freedom and saw a need for more children to enjoy the thrill of riding a bike, something they may not

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I'm thrilled to be able to share Preston's story and advocate for adaptive cycling in other communities.

Deb Buenaga
CEO, Preston's March
for Energy

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be able to experience due to a disability. Preston was so excited about his newfound independence that Deb and Steve knew they had to pay it forward.

The Buenaga family was determined to make this happen for other children. They started raising funds to provide bikes to children with all types of disabilities. With the help of some generous donations from family and friends, Deb and Steve recruited board members and had PMFE incorporated. Both Deb and Steve understand that

many children with disabilities cannot ride a typical bike. Therefore, they made sure PMFE adapts each bike to the individual child and their abilities, including their favorite color. The cost of each bike may vary between \$1,500-\$2,500 depending on the needs of the child.

Children with disabilities often have a higher rate of childhood obesity. The need for adaptive recreational equipment and family involvement is important for children to enjoy time together participating in physical activity. PMFE's mission is to provide adaptive bikes to children ages 6 to 21 across the United States with special needs so they can feel independent, be physically active, and can be involved in social activities with family and friends. There is no financial obligation, but the organization encourages families to pay it forward. They receive applications for bikes through their webpage (prestonsmarch.org).

Over the past 5 years PMFE has relied on corporate donations, individual donations, fundraisers, and most recently they have been applying for grants, both locally and nationwide. They have also partnered with other non-profits with similar missions. Some of these are ATI Foundation, Kids with Confidence, Irish Pub Children's Foundation, Watermark Foundation, local Rotary Clubs, the local Chamber of Commerce, and The Noblemen. They also have long-time yearly corporate sponsors such as Discover Card Services and J&A Racing.

PMFE also offers a book by Todd Civin called *A Bike to Call their Own* that tells the story about Preston and his March for Energy and their mission for others to follow.

Photos courtesy of prestonsmarch.org



In addition, they hold four events a year. The Yuengling Shamrock Marathon accommodates all ages and skill levels and includes a huge finish line celebration on the beach. Each year 30,000 runners from all 50 states and several other countries enjoy this event in Virginia Beach, VA. In 2016, J&A Racing presented 10 bikes to 10 very special children from the Hampton Roads area during the Shamrock weekend. The Corporate 5K, presented by Discover, provides an opportunity for companies in Delaware to gather and help raise funds to help other children smile with an adaptive bike of their own. The 5K is held through the streets of one of the largest Discover Corporate Parks in New Castle County. The Fusion 5 and Dime 5 & 10 mile races are held through Newark, Delaware starting and finishing on Main Street. After the race, the party continues downtown at Newark's Food and Brew. Adaptive athletes are highly encouraged and welcomed. After the race, participants can use their 5 and Dime beer mug to keep the party going. The Our Corks and Cookies event, invites local bakers to bake cookies. They invite celebrity judges that decide which is the Top Cookie and awards a prize to the winning baker. Finally, the Putty for Preston event raises funds for adaptive bikes while making slime. A minimum \$10 donation is encouraged and more is welcomed.

The organization also has its own website and Facebook page. To date, they have presented over 180 bikes to some very deserving children. Seeing their smile when they ride their bike for the first time is absolutely priceless.

For more information, visit Preston's March for Energy at prestonsmarch.org.



CASE STUDY:

Open Streets: Transforming Neighborhoods into Play Spaces



Photo courtesy of portlandoregon.gov.

Contributed by Rob Sadowsky

Ciclovías were first born in Colombia in the 70's. In the U.S., the temporary closing of streets to motorized vehicles in order to create safe spaces for individuals to bike, jog, run, stroll, play, and enjoy the outdoors, are referred as open streets. The Chicago Open Streets movement was started by Randy Neufeld – former Executive Director of the Active Transportation Alliance, currently serving as Director of the SRAM Cycling Fund.

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Open Streets projects, both in Chicago and Portland, transformed neighborhoods into play streets and provided an opportunity for local churches, social service agencies, and arts groups to engage with citizens in a fun, active way.

Rob Sadowsky
Consultant,
S&G Endeavors, Ltd.

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Neufeld first experienced an Open Streets event in Bogotá, Colombia in 2003. While the model was not common in the U.S. at the time, a group of citizens in Chicago were advocating for it.

After advocating about the movement in different conferences and inviting Gil Penalosa from 80 Cities to the project, the Active Transportation Alliance (ATA), a local non-profit organization supporting active and sustainable transportation, organized the first Open

Streets in Chicago. With the help of the Chicago Loop Alliance and the Downtown Chamber of Commerce, they coordinated their first event which was very well received by the public; however, Chicago's city government was not actively involved in organizing or funding Open Streets.

While the half-mile route, located on State Street between Lake and Van Buren Streets, may not have offered enough distance for jogging or biking, the event offered opportunities for active experiences. A temporary skateboard park and a 500-sq.ft. playground were also available for children. The biggest sponsor of the event was the Illinois Center for Broadcasting with additional funding from PNC Bank, REI, Walgreens, and Lady Foot Locker, and donations from The Polk Bros Foundation and the Hopps family.

The Loop Alliance was instrumental to help ATA organize Open Streets and to facilitate city approvals. The Alliance's role as administrator for the State Street's Special Service Area (SSA) contributed to the local tax district that funds other services and programs within the special property tax. ATA administrators acknowledged that the involvement of the city was key to make Open Streets a long-term, sustainable program after organizing Open Streets for two consecutive years. Unfortunately, the city was not able to adopt the program on its own even though the benefits and value of Open Street events are clear; therefore, the alliance was unable to continue organizing and funding Open Streets in later years.

In 2006, the former Active Transportation Executive Director, Rob Sadowsky, who headed the Bicycle Transportation Alliance in Portland, OR gave a presentation about Chicago's Open Streets proposal at a planning conference. While the idea of Open Streets did not develop in Chicago, it was Rob Sadowsky who brought it to Portland, OR and shared it with then-mayor Tom Potter. Mayor Potter was thrilled by it and excited to move this idea forward.

The idea materialized with Mayor Potter as an instrumental part of the project. Currently, Portland, OR organizes and funds multiple Open Streets under the name "Sunday Parkways." The event offers roughly 12-mile routes drawing 35,000 participants every Sunday. The local government has taken great interest in

continuing to offer the event, which has been successful for numerous years. Sunday Parkways are held for a few hours every Sunday from May to September highlighting different neighborhoods of the city. The route includes parks, spaces for yoga, dancing, food booths, and other local businesses.

The City of Portland has been highly proactive in organizing and holding Open Street events. The City has been so productive that in August 2016 the International Open Streets Summit was organized by the Open Streets Project and held at Portland State University. The conference covered topics including techniques to fill streets with people, policymaking, building a movement, tactical urbanism, and so forth.

Other Open Streets or Ciclovías have developed in the U.S. throughout the years. New York City closes seven miles of Park Avenue on selected Sundays in August for the "Summer Street" program which draws an average of 50,000 people each day. San Francisco also organizes "Sunday Streets," an eight-Sunday a year event drawing between 15,000 to 20,000 people. In addition, Los Angeles, CA, Atlanta, GA; Durham, NC; and Minneapolis, MN; are including Open Street events in their planning. In all these examples, the events' success has been mainly thanks to the involvement of visionary people along with the support of City Government, including the local Department of Transportation.

CASE STUDY:

Catalyzing Trail Development through Grant Funding



The Schuylkill Banks Boardwalk. Photo courtesy of [facebook.com/TheCircuitTrails](https://www.facebook.com/TheCircuitTrails).

Contributed by Sara Stuart

Historically, the State of Pennsylvania was a railroad hub with rail lines merging into Philadelphia and built between the Delaware and Schuylkill rivers. Rail lines ran up and down the seaboard creating the largest railroad system of its time in the world. After WWII, as industry left Philadelphia, the riverbanks become more open. The Parks and Recreation Departments of the area started the process of reclaiming green open spaces and creating paths in what used to be the railroad lines. These were

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The TIGER Round I Grant catalyzed trail development, was greatly leveraged by private, state, and other federal dollars and essentially launched the rebranding of our regional trail network as the Circuit Trail.

Sarah Stuart
Executive Director,
Philadelphia Bicycle Coalition

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designed to be wider, longer, and feature multipurpose areas for recreational activities.

The concept of creating a 168 mile long trail became a reality after Parks and Recreation Departments started to work together to connect the counties of Philadelphia, Montgomery, Chester, Schuylkill, and Berks. A trail was developed in Delaware County along the canals. Over time, the trails started to become more developed thanks to the green space available.

In the 1980's and 1990's the William Penn Foundation made the watershed a priority in the area with the goal to have access to the waterway. This foundation funded non-profits around the region (composed of 9 counties) to help build as much access to waterways and trails as possible. This traditional funding model was successful for a limited amount of time as the organizations shared the same goals but had not developed a long-term strategy.

The concept of connecting the existing trails around Cooper River with those around the Schuylkill and Delaware rivers was an idea a small group of people were advocating for, but the idea was not widely recognized in the community. In the 2000's there was a major effort to extend the Schuylkill River Trail, which started at the Philadelphia Museum of Art, to expand south about 13 miles. The acceptance of the new Highway Transportation Bill allowed federal funding for non-motorized transport to be used for the construction of the trail. The bill promoted community groups to spend the money on biking, walking, paths, and trails that connected businesses, homes, and offices together.

In 2003, the construction of the Schuylkill River Trail was started next to an active rail line. However, because of the proximity to the railroad, construction was delayed until it could be certain that individuals using the trail were at no risk of injury. The campaign started in 2004 with an agreement between the CSX Corporation (the railroad company) and the City of Philadelphia, which allowed people to cross the rail by two new bridges, as opposed to having a trail running parallel to the railroad.

Unfortunately, the financial crisis of 2007-2008 put a stop to many projects including the development of trails. The coalition thought that under President Obama's stimulus package for infrastructure, the project would receive capital to move forward. Regrettably, the coalition learned other projects were prioritized since these were already ready to start construction. During this time, the coalition learned a lot about transportation, funding, and how other trails projects received funding.

A year later the Department of Transportation (DOT) launched a grant for sustainable projects. The TIGER (Transportation Investment Generating Economic Recovery) grant, a supplementary discretionary grant program, met the needs of the coalition and they worked together to apply. After discussing the project with

other non-profit organizations and agencies, a map was put together with all the possible trail networks and connections that could be built to enhance the existing system. Since this was a multi-jurisdictional project, the City of Philadelphia acted as the applicant. After four months of waiting, they received notification they had been awarded \$10.265 million. The grant was divided into three projects including one to change the swing rail bridge over the Schuylkill River near Grays Ferry into a bridge trail.

The William Penn Foundation executives were ecstatic after the City received the grant considering that they had no knowledge of anyone receiving such a large grant before. This was, without a doubt, a catalyst for building the trail network, which is today known as The Circuit Trail (circuittrails.org). The private companies investing in the project since its inception supported the project and helped leverage the Federal government for more investments of this type. A total of \$60 million has been received since then, thanks to all the advocates that invested their time and work.

The Philadelphia Bicycle Coalition (PBC) has made it a goal to focus their resources and attention to tracking each mile that opens throughout the trail network. This includes celebrating each new segment and sharing success stories and accomplishments with others. Ultimately, the goal is to make sure everyone feels the success and the impact the trails have on the community.

In 2012, the PBC extensively researched how many miles were already existent and how many more needed to be included in The Circuit. In the future, and to keep individuals and communities focused on the project, the PBC is looking to build 500 miles by 2025 and connect the 750 miles of trails in order to develop a trail network unlike any other in the country. The Circuit will connect urban, suburban, and rural communities and provide a place for healthy transportation and recreation while connecting the communities to green spaces. In the meantime, they are marketing The Circuit through social media, local media, and their website to keep individuals and the community engaged.

CASE STUDY:

Rural Virginia Community Rediscovered the Joy of Bike Riding



Need text here

Contributed by Amanda O'Rourke

In 2013, the City of Galax, a small rural community in the foothills of the Virginia Mountains, set out to build a "Bike Library" for students in their community. The idea, a brainchild of Galax City Public School's Board Chairman Ray Kohl, was to build a library for children to visit and "check out" bikes and helmets.

That year, Galax secured a Virginia Department of Transportation (VDOT) Safe Routes to School non-

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By fostering local support the Galax Safe Routes to School program has helped transform its town into one where walking and biking is a vibrant part of community culture. We're so happy to recognize their outstanding efforts and we hope Galax will inspire similar programs in other small town communities across the country.

Nancy Pullen-Seufert
Director of the National
Center for Safe Routes
to School

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infrastructure grant and purchased 30 children bicycles and helmets in varying sizes to launch their project. Federal partners such as the U.S. Department of Transportation, the Federal Highway Administration, and Safe Routes to School also contributed. Additional donations of bicycles were made by Main Street Bike Shop and the local Wal-Mart.

The City did not have a permanent facility to store the equipment, but by partnering with their Parks and Recreation Department they were able to purchase and

place a 12' x 20' storage facility on the department's grounds next to a quarter-mile track for walking and biking — and only a half mile away from the New River Trail State Park. The Bike Library opened in March 2014. Flyers were distributed in Spanish and English to schools, the local health department, parks and recreation departments, and other locations around the community.

The success of the Galax Bike Library Program has truly been a community effort. The local bike shop owner and park personnel volunteer to help attend to bicycle repairs. With the help of the City's attorney the liability and permission documents given to parents prior to student's renting out equipment were approved. In these documents, it is stated that children younger than 13 years old need a parent present to ride with them. Other community members have donated adult bikes, letting students and their parents check out equipment and spend afternoons riding on the scenic New River Trail and around Galax's quaint downtown. The bike library has also gone mobile through the purchase of a bike trailer, and now the local Safe Routes to School Coordinator and volunteers deliver on-site bike safety lessons in the community's neighborhoods. The program allows students and residents of the area to check out bikes on a first-come, first-serve basis to ride for free for a few hours.

Each year, use of the Bike Library grows. In the first month

of operation, eight students signed out bikes and helmets. Now, more than 145 students and parents have checked out equipment from the library, not counting the number of students who have participated in bike rodeos, bike rides, and bike riding lessons in the schools and on the Parks and Recreation Department grounds. Each time a bike is checked out, staff inspects the bikes for any maintenance necessary and when they are returned the bikes and helmets are also inspected to make sure they are in working condition and clean for the next renter. Any bikes that do not meet these criteria are pulled out from the library for repair.

The Galax Bike Library Program has reinvigorated a community where nearly a quarter of the population lives in poverty. Prior to the library, many students and adults had never had the opportunity to ride a bike. This effort has allowed families to rediscover the joy and independence of pedaling around their City while reconnecting with their community.

In 2016, the National Center for Safe Routes to School announced the Galax Safe Routes to School Program was to receive the Oberstar Safe Routes to School Award, a national award for outstanding achievement for implementing the Safe Routes to School program.

Galax employs a number of marketing techniques to promote the program.



The library allows many children who have never ridden a bike the opportunity to do so.



CASE STUDY:

Building the World's Largest Pop-Up Bike Network



Riders in Macon, GA

Contributed by Amanda O'Rourke

Macon Connects (led by NewTown Macon and Macon-Bibb County Urban Development Authority, Main Street Macon, and the Department of Parks and Beautification) was a bold initiative that set out to change the way Macon residents get around their city. This initiative wanted to find out how Macon, GA, residents could better connect to one another. The main goal of the initiative was to answer the following question: How can they test out residents' ideas for improving connectivity in Macon? In 2016,

residents were invited to attend the Macon Connects Street Makeover to enhance connectivity and mobility through street activation and pop-up bike lanes/network. Macon Connects organized a three-day Ideas Festival in June 2016. The event consisted of 19 diverse events which attracted over 1,100 attendees who contributed 430 creative ideas to improve connectivity and mobility in the area. The organization used the results from the engagement process to plan a bike network that connects Maconites to the places they want to go.

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I think both bike lanes and bike infrastructure are important. But also, the event just reinforced the need for proper planning when you do make permanent improvements.

David Fortson
Bibb County Engineer

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This initiative builds on the data that emerged from the 2015 Macon Action Plan (MAP), funded by the Peyton Anderson Foundation and the John S. and James L. Knight Foundation. With the support from Bike Walk Macon, and prototyping and community engagement services provided by Better Block Foundation and 880 Cities, the project was selected from a pool of more than 4,500 entries into a nationwide competition.

The temporary bike lanes were installed using white athletic field striping paint and plastic delineators. The Macon Connects team and 90 local volunteers constructed a temporary, 5 mile (8 kilometer) bicycle grid that encompassed the entire downtown. The bike network was left up for one week so that Macon residents, cyclists, and non-cyclists alike, could experience the impact that a bike network would have on Macon's downtown.

Four bike counters were installed along the bike network to count the number of cyclists on Macon's streets.

In a city that normally sees only 24 bikes a day on its downtown streets, the pop-up bike network increased average daily bike counts by nearly tenfold (854%) during the seven days it was available for public use. This experiment was encouraging for Macon-Bibb County and proved that if you build it (a bike network), the people of Macon will in fact ride.

After the pop-up event, road users were surveyed about their experience with the pop-up bike network. Feedback was captured and results of this experiment generated a report, which will be used to guide and finetune the development of permanent bike infrastructure in Macon. As of July of 2017, the 3-mile unprotected bike lane still does not connect to a larger network of trails; however, the event held the fall before resulted in carving spaces for bikes and implementing a permanent bike lane downtown in a city with essentially no bike lanes.

Temporary bike lanes provided the city of Macon, GA, with a way to measure usage and interest in bike lanes.



CASE STUDY:

Managing and Growing a Commuter Program



Photo courtesy of Dero.

Contributed by Bri Whitcraft

Many private and public employers, universities and colleges, and non-profit organizations are interested in promoting commuting by bike not only as an environmentally friendly mode of transportation but as a healthy alternative to driving. More and more, these organizations are looking for an effective way to track the amount of bike trips made by their employees and encourage even more biking. Dero ZAP, an automated RFID (Radio Frequency Identification)

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Dero ZAP was the only all-in-one program we could find. Their RFID tags allowed for easy participation that helped move our bike incentive program away from self-reporting. And the online dashboard provides easy access to information for both participants and program managers.

Kimberly Reeves
Sustainability Program
Manager at the
University of Colorado,
Colorado Springs.

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system with integrated hardware and software (optional solar powered), offers opportunities for managing and monitoring bike commuting and tying it with an organization's wellness program. With Dero ZAP, users only need to register once, have an RFID tag put on their bike, and bike past a reader and their commute is recorded (a.k.a. “zapped”). On the admin side, it's easy to report the number of times individuals bike commute, so incentives can be awarded.

The first Dero ZAP system was installed at the University

of Minnesota in 2012. The University has approximately 65,000 individuals on campus; 9,000 of those are cyclists. Currently, around 4,500 participating cyclists make their way to campus every. They have installed over 20 Dero ZAP readers at the Minneapolis/St. Paul campus. The technology has encouraged people to leave their cars parked and commute by bike instead. The system is easy to use and the university has created a program around it. Faculty and staff, as well as students, participate in seasonal challenges and can earn rewards by biking at least 8 times per month. Each day that staff and faculty are “zapped” goes towards the university’s wellness points program, so successful participants receive an annual health insurance discount on their premiums.

More recently, the University of Colorado at Colorado Springs (UCCS) implemented the system on their campus in 2017. The university is utilizing the Dero ZAP program to move away from their self-reporting bike initiative. The online dashboard allows both participants and program managers access to the information at any time. The program encourages participants to ride their bikes for a prize at the end of the month. Program administrators can set up a specific goal for the month, and the online dashboard provides the ability to sort, draw a winner, and automatically notify them by email that they have been selected. The system also allows a more accurate inventory of prizes to be given away each month.

According to Kimberly Reeves, the Sustainability Program Manager at UCCS, the program has been extremely successful. She stated, “Our front runner is a facilities

staff person, and he’ll be the first to tell you how far ahead of the second-place rider he is. There’s also a chemistry professor who can’t get enough of the ‘chirp’ every time he gets to campus. He says it’s like a little cheer that he biked another day; he rides for the health benefits.” At their Bike Jam/Bike to Campus Day event, the University’s Facilities Services staff successfully signed-up 60 participants to the Dero ZAP program. Since then, other events have taken place where more individuals have joined for a total of 85 participants. By 2017, all five readers have been already installed. The University is hopeful that more participants will register moving forward.

The University has realized that the data collected with this system could potentially help advocate for more bike infrastructure in areas of high traffic. The first reader installed is by far the most frequented one but program managers have realized that other locations where readers are placed are used as much as this one. The overall goal of UCCS is to promote wellness through implementing this program. The campus is located on a bluff and it is about 15-30 minutes from hiking trails. This makes it an ideal area to promote biking with the goal to increase wellness, active living, destress participants.

UCCS staff have expressed that Dero ZAP has been an exceptional forum for talking about why colleagues bike to campus. These conversations have led to other topics such as how biking involves saving money on parking and even how biking has an impact in reducing the use of single-occupancy vehicles. However, no matter the reason, health is ultimately the main factor.

Photos courtesy of Dero.



CASE STUDY:

Infrastructure Investment Promotes Impressive Growth in Participation and Ridership



30,000 K-8 students now walk or bike to school in Long Beach Courtesy of bikelongbeach.com

Contributed by Steve Tweed

With an average year-round temperature of 74 degrees and about 12" annual rainfall, Long Beach, CA, has close to perfect weather. For the residents who make Long Beach home, it is not just the weather, but the investment in infrastructure that make the city the perfect environment for bicyclists. Long Beach has embraced the bike as a mode of transportation, and has proclaimed itself to be one of the most bike-friendly cities in the nation. From the debut of the city's landmark Shoreline Pedestrian Bike

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The provision of bicycle parking is an important step to encourage and support bicycle usage citywide.

Steve Tweed MS, MC & RP
Transportation Planner
Public Works
Long Beach, CA

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Path in 1988 and the first bicycle transit center in the U.S. in 1996, Long Beach has long been a pioneer in creating a bike-friendly city.

Over 120 miles of bike paths exist in Long Beach, including 30 miles of roads shared between bikes and cars, almost 50 miles of lanes marked exclusively for bike travel on roadways, and 40 miles of bike paths dedicated to bike and pedestrian traffic. The bike boulevards are generally low-volume streets optimized for bicyclists and pedestrians, and typically provide connectivity among

schools, parks and neighborhoods. The 1.5-mile Vista Street Bike Boulevard, for example, was the first bike boulevard in Long Beach, and also serves as a Safe Route to School for students from four area schools. In the first year the boulevard was open, the number of children walking to school doubled and those biking to school tripled.

To help promote bike usage, the city also schedules a number of fun, bike/pedestrian centered activities throughout the year. As the home of the Long Beach Indy Car Grand Prix, the community is invited to walk, bike, skate, or jog the race course the week before the drivers take over the track. Called the “Grand Prix View,” the event has been held multiple years in a row, and is an Open Streets event. There are street fairs held throughout the year that encourage attendance, and May is “Bike Month” with a variety of community rides, events, workshops, and meet-ups designed to promote cycling as a fun activity and a great way to get from place to place.

City leaders and advocates have made great strides in securing state and federal grant funding to build bicycle infrastructure and support safe and convenient facilities for all types of riders. As an example, the city applied for and received a Federal Transportation Enhancement grant from CalTrans, as well as funding from the LA County Metropolitan Transportation Authority to help purchase nearly 2,000 bike racks for city use. Steve Tweed, Transportation Planner with the Public Works Department noted in a presentation to the LA County Bike Summit, “the provision of bicycle parking is an important step to encourage and support bicycle usage citywide.” If businesses that are open to the general public (and located on public sidewalks) would like to see a complimentary bike rack installed in front of their business, they can request one at bikelongbeach.org, and choose from a variety of artistic shapes. With such an easy system, bike racks throughout the city have flourished, as has ridership.

According to Steve Tweed, “The bike racks are almost like art, which fits well and reflects the taste of downtown Long Beach.” The clever racks are not only functional, they often replicate the theme of the businesses they support, with comedy & tragedy masks outside the theater, a rack in the shape of a steaming cup outside the coffee house, and a large carrot near a vegetarian restaurant.

The city’s infrastructure plans continue to expand, and current strategies include constructing additional bikeways as a result of the Bicycle Master Plan, adopted by the City Council in February 2017. Routes selected for improvement were determined by community input received during plan development, which included over 450 survey responses and feedback from over 25 in-person events. As a part of the process, Spring Street was selected to be part of the city’s “Backbone Network,” a connectivity plan which will join dozens of miles of existing bike lanes. Spring Street runs continuously across the city, forming a fundamental east-west route for the network, which will provide critical connections to other bikeways and key destinations like river trails, transit lines, shopping centers, restaurants, and schools. To help get feedback on the Bicycle Master Plan, the city utilized strategic marketing tactics to engage stakeholders and residents, like temporary bike lanes set up in significant locations throughout the city, where participants could use a free valet service to park their bikes, learn more about the Master Plan, provide their thoughts, and enjoy shops and restaurants in the area.

Long Beach has three new Bike Boulevards underway, the 6th Street Bike Boulevard in construction, with a projected completion by the end of 2017; the Daisy Avenue Corridor Bike Boulevard is expected to open by the end of summer, 2018; and the 15th Street Bike Boulevard is in design and is expected to be complete by the end of 2018.

In addition, the City was awarded \$6.75 million in funding through CalTrans’ Active Transportation Program (ATP) in 2015 for the Citywide 8-80 Connections project, which includes two bicycle boulevards on 20th Street. and Loma Avenue and a one-mile road diet on Palo Verde Avenue with buffered bike lanes. The project will also include bridge ADA upgrades, intersection improvements, and a city-wide campaign designed to encourage and educate people about the benefits of walking and biking.

During Public Works’ routine analysis of collision spots across the city, a significant number of left-turn and broadside collisions were apparent on Anaheim Street. To address the issue, an application was submitted to CalTrans for their Highway Safety Improvement Program (HSIP) to construct controlled-access medians and pedestrian refuges on the street. The application was successful and the City was awarded \$3 million in funding. Construction is expected to begin in 2019.

The City also submitted an HSIP application for the installation of high visibility crosswalks, including bold pavement markings, pedestrian signage, and solar powered warning flashers at 18 locations. That application received \$250,000 in funding and construction is expected to begin in 2019.

Additionally, the City received ATP funds in 2015 for the Delta Bike Boulevard project (\$1.1 million). The new bike boulevard will connect west side neighborhoods to two schools and a park. Construction is expected to begin in 2019. The city hopes to see the same improvements in walking/biking to those two schools as the Vista Bike Boulevard has supported for the four schools it connects.

New protected intersections benefiting bicyclists, pedestrians and motorists are also planned as part of the city bikeway improvements. City staff plans on applying for grant funding from the state's Active Transportation Program (ATP) in spring 2018. If funded, the projected completion date for the new protected intersections will be 2022.

Lastly, the City was recently awarded \$3 million by CalTrans for the Atherton Bridge & Campus Connections project (\$3 million). The project would construct a bridge spanning the San Gabriel River connecting the regional bike trail with several meaningful destinations.

This bike station is one of many improvements the City has made to support cycling. Courtesy of suzannetoro.com



Critical to Long Beach's funding are their annual "Bike Counts." Since 2008, Long Beach has annually recorded bicycle and pedestrian volumes at significant locations throughout the city. The program is staffed by volunteers, and the city has seen amazing support and participation for the program. The Count is held in October, for two-three hour periods at each count site. Since the inception of the Bike Count program, Long Beach has been able to confirm steady and impressive increases in bicycle ridership. With consistent data from year to year, the counts provide important metrics to the City regarding safety, capacity, ridership trends, and the value of their investments, which in turn allows them to provide this data in their grant and funding applications.

Since 2012, efforts to promote safe bicycling have resulted in tripling of the number of people who bike and walk to work. At the same time, Long Beach has enjoyed a 50% increase in overall bike ridership. With such positive attention from urban planners, legislators, public health and the media, Long Beach is a progressive model for other communities. For its efforts, Long Beach has also received the Silver designation as a Bicycle-Friendly Community by the League of American Bicyclists.

Bike parking in Long Beach often reflects the nature of the businesses nearby. Courtesy of Dero



Courtesy of bikelongbeach.com



LONG BEACH
BIKE SHARE
IS A GREAT
WAY TO GET
AROUND THE
CITY EASILY.

CASE STUDY:

Linking Communities through the Razorback Regional Greenway



Riding the Northwest Arkansas Razorback Regional Greenway

Contributed by Charles “Chuck” Flink, FASLA

The Northwest Arkansas Razorback Regional Greenway is one of the most unique regional urban greenway trails in the United States. The goal of the project was to link together the six communities of Northwest Arkansas (Bentonville, Rogers, Lowell, Springdale, Johnson, and Fayetteville) via a 36-mile long, primarily off-road, 10- to 12-foot wide, hard surfaced trail. The Razorback Greenway links together dozens of key, popular community destinations including six downtown areas,

three major hospitals, twenty-three schools, the University of Arkansas, corporate headquarters of Wal-Mart, JB Hunt Transport Services, Tyson Foods, arts and entertainment venues, shopping areas, historic sites, several parks, multiple playgrounds, and residential communities.

A highly-experienced greenway design team (a.k.a. The Green Team), comprised of Alta Planning + Design, Greenways Incorporated, The Greenway Team, Thomas Woiwode, the League of American Bicyclists, and CEI Engineering, was fundamental to the execution and

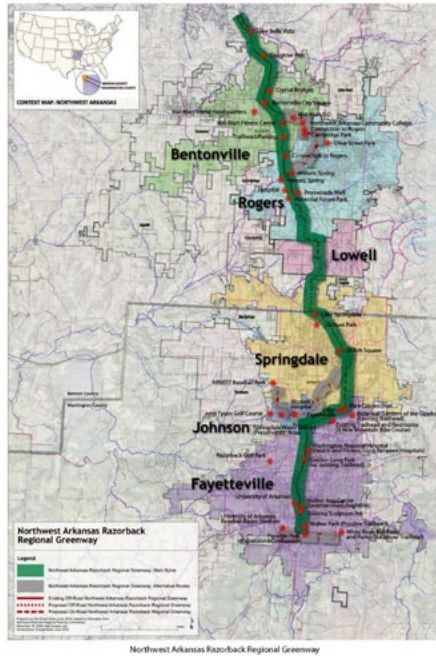
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This opens up the region. We can all walk or ride the trail no matter how diverse we are. Our diversity is our strength.

Lioneld Jordan
Fayetteville Arkansas Mayor

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completion of the project. To realize the dream of a long-distance, interconnected, off-road, shared-use greenway trail, the communities of Northwest Arkansas needed to fund both the development of the trail as well as the long-term operations and management of the project.



The Green Team estimated the total project development costs would exceed \$38 million. In November 2010, the Razorback Regional Greenway was awarded a \$15 million TIGER II (Transportation Investment Generating Economic Recovery) Grant to fund design, acquisition of right-of-way and construction for a designated portion of the Razorback Regional Greenway. The TIGER II Grant was one of 40 national awards made by the U.S. Department of Transportation. The Walton Family Foundation agreed to use a \$15 million project grant to match the federal grant award. The \$30 million in total funding paid for a majority of the trail project, leaving the communities with approximately \$8 million in additional funds to raise to fully complete the project. The federally funded portion of the Razorback Regional Greenway extended approximately 16 miles from the north end of Lake Fayetteville to the Pinnacle Hills Mall in Rogers.

The Green Team completed the design development documents for the Greenway Trail. This work included surveying, preparation of construction documents, obtaining permits and right-of-way, and awarding of construction contracts. The communities of Fayetteville and Johnson worked together to build the Clear Creek Greenway and Frisco Greenway portions of the Razorback Greenway.

Interestingly, the Razorback Regional Greenway was already serving as an economic engine for development. In addition to the jobs created in the implementation of

such a system, the trail also could potentially generate millions of dollars in economic gain. Businesses have been moving to the trail, and more people are looking for real estate near the greenway system. Real estate values are already beginning to increase as a result of the completed greenway. Moreover, the regional greenway system has been attracting tourists to the region, creating a greater need for service and retail industries.

The regional greenway system has also been positively benefiting environmental change. Several groups in the area have been working to restore disturbed landscapes and to install additional landscaping so that the greenway improves overall quality of the environment. Furthermore, the Illinois River Watershed Partnership (IRWP) has been instrumental in offering public education and community outreach. Other practices they have implemented are greenway trailheads and signage that educate the public about where they live, work, and play in relation to the Illinois River Watershed. Another goal of the Razorback Regional Greenway was to provide an educational opportunity by connecting local schools along the route. Young students have the chance to become more engaged with the environment in a personal way as they observe streams, landscapes and wildlife. Even more importantly, the regional greenway also provides an enjoyable and safe alternative form of transportation, reducing emissions from automobiles and decreasing traffic congestion.

In addition to providing access to safe, accessible, and attractive places to bike, walk, hike, jog, skate, and enjoy water-based trails, the Razorback Regional Greenway also promotes a healthier Northwest Arkansas. The Endeavor Foundation, a charitable community foundation that connects people and organizations with ideas and resources, has been and continues to be very involved in the promotion of the trail system. Anita Schism, President and CEO of the foundation, states, "We work to improve the quality of life in Northwest Arkansas. We really think that the regional greenway is critical to that piece of improving our quality of life here." The foundation recently launched a new healthy active living initiative known as EnergizeNWA. Schism adds, "I think building on the success of the greenway, Endeavor will be able to support programs and amenities and infrastructure to help connect the trails to the greenway to make active and healthy lifestyles accessible for everyone in our region."

CASE STUDY:

Parklets Creating Recreation Spaces in the Midst of Urban Density



This Vancouver Parklet on Robson Street shows the proximity to businesses, bike parking and restaurants. Courtesy of Paul Krueger

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With the addition of [parklets] we're bringing yet another innovative approach of people-oriented public space to neighborhoods.

Darrell Mussatto
Mayor
North Vancouver, BC

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Vancouver, BC is a Canadian city of nearly 2.5 million people.. Its amazing cultural diversity, importance as a port for world trade, and the vast sea, mountain, and forest recreation opportunities surrounding the city has resulted in steady growth and a heavy tourist industry. With the city growing up, not out, new areas for parks within the urban center of the city are not usually an option. To address this, and to provide more park-like environments within the urban structure, the city is turning to parklets. A parklet is typically a small, sidewalk-scale open space that repurposes a curbside lane or parking spot. Created

by building an extended and/or raised platform over the space, parklets can include nature elements, fitness and play opportunities, benches, tables, chairs, landscaping, and bike parking. They serve a variety of purposes, including providing places for people to relax, and expanding sidewalks for walking where streets are narrow or congested. Since sidewalks and streets make up a large part of a city's overall land area, they are an integral part of the daily experiences. Since many sidewalks were narrowed during the 20th century to make room for autos, often people are left with crowded sidewalks with no

space for stopping and resting. Since many city dwellers need to travel great distances to enjoy a park, play area, or other public space, parklets provide opportunities for urban communities to create small, important spaces right in their neighborhood. Today, building a parklet is easy, as they can be purchased as a modular kit, with the ability to build to suit and add features like side rails and/or cabling to denote the space boundaries and promote safety. With this infrastructure in place, the amenities and art at a parklet can be created to reflect the diversity and creativity of the business and people who build, support, and use them. They also reflect a community's commitment to walking, bicycling, and strengthening connectivity.

Vancouver tested the effectiveness of parklets in a pilot program over several years before the City Council officially approved the Parklet Program. Vancouver's first three parklets were built between 2011 and 2012. The first was constructed in 2011 as a stand-alone project in response to a call for proposals. In 2012, two more parklets were added in other areas of downtown Vancouver. The interest in these sites resulted in the City of Vancouver's VIVA Vancouver program launching the Parklet Pilot Program in 2013. VIVA Vancouver is a city-led program with the mission of transforming roads into vibrant spaces for people. They work in collaboration with community groups, businesses, and regional partners to facilitate short- and long-term closure of streets, creating public spaces for walking, relaxing, and enjoying the

city. The work of VIVA Vancouver enhances the city's community capital, encourages walking and cycling, and supports local business with this additional foot traffic.

The purpose of the initial program was to understand how parklets would be received and used, and whether the program should be implemented on a permanent basis. Business owners, community organizations, and other applicants in Vancouver were eligible to apply for parklets under the pilot. If approved, each applicant was tasked with covering the costs of designing and installing the parklets, documenting community support, and maintaining parklets on a regular basis. Under the pilot, three more parklets were built for a total of six.

In 2015, the effect of the six parklets was evaluated. The parklets were found to be well-used, well-maintained, and supported by both owners and users of the parklet spaces. The data collection process lasted over the summer of 2015, and included visiting the parklets to track behavior mapping and length of stay, seeking input from both the public and businesses in a survey, and assessing the cleanliness and upkeep of the parklets.

The survey responses indicated that people found the parklets to be an element in making streets more vibrant and fun. One of the most important reasons, as indicated by the people surveyed, was that they add a social element where people can meet, relax, and talk. People also thought the parklets added an important aesthetic

Parklets like this one can be purchased as modular units, making construction easy. Courtesy of Dero



value to the places they were located. It's important to note that issues of graffiti and maintenance were almost non-existent, with only one minor issue in each of these two areas of concern noted over the life of the pilot program.

The city also wanted to be sure that businesses had the opportunity to participate in the survey, to ensure they also had a positive view. Surveyors recorded that 13.6% of the businesses noticed an increase in business as a result of the parklet, and negative impact was minimal, as only 6.2% of businesses noted this effect. The most common response of these was lack of a parking space. Nearly 65% of businesses noted that the parklet had made their neighborhood a better place.

One of the most important lessons learned had to do with people's familiarity with the concept of parklets. Many did not realize that parklets were a public/no-purchase necessary space, and were delighted to learn that this was the case. In addition, the most frequently mentioned suggestion was the addition of more parklets throughout Vancouver, which indicates they have a promising future, not just in Vancouver, but in urban environments worldwide. People also noted the desire for additional improvements, like more seating and shade structures over the parklet to provide protection from weather elements.

As a result of the successful pilot, the Vancouver parklet program was officially launched in June of 2016. Vancouver businesses interested in adding a parklet can complete a simple 2-page form, and submit it along with initial concept description, site plans, photos of the site, parking meter info, and documents showing the support for the parklet. The application process and approval takes approximately 6-8 months.

The parklet is an innovative way to build public gathering spaces right in the heart of the urban streetscape. Businesses and organizations with limited sidewalk space now have the unique ability to extend their atmosphere and aesthetic to the outdoors. Parklets are an important tool in supporting local business, enlivening the city streets, and attracting non-motor driven traffic like cyclists and pedestrians. Parklets are often located near bike parking, and bike parking can be incorporated into the parklet as an element of convenience to attract cyclists to the space.

Courtesy of Paul Krueger





THE
PARKLET
IS AN
INNOVATIVE
WAY TO
BUILD PUBLIC
GATHERING
SPACES RIGHT
IN THE HEART
OF THE URBAN
STREETScape.

CASE STUDY:

Silver Spokes for Senior Folks



Photo courtesy of Be Active Decatur

Contributed by Cheryl Burnette

As more and more community members become interested in cycling, the need existed for a way to encourage our Senior Citizens to get back on bikes; they need to have a level of confidence on the bike as well as the skills needed to navigate city streets and bike paths. The City of Decatur, GA, created a Silver Spokes program to fill the need.

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Our greatest joy is seeing community members who may not have been on a bike since they were young enjoying the freedom that cycling provides.

Cheryl Burnette
Active Living
Assistant Director
City of Decatur, GA

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The City applied for and received a \$1,000 mini grant from the Georgia Recreation and Parks Association which helped purchase three adult tricycles for the pilot program. Partnering with Georgia Bikes! the program started to take shape. Nedra Deadwyler, the Education Coordinator for Georgia Bikes!, kicked off the classes with their staff. Staff members learned from her, and soon took over the class. To keep the program sustainable, the city sponsored two local cyclists to attend the League of American Bicyclists League Cycling Instructor (LCI) training program. These two cyclists are now teaching the Silver Spokes class.

The class meets once weekly during April and May and in the Fall during September and October. Classes teach a review of safe cycling skills before heading out on the trikes. The program started out with the very basic skills such as how to mount the bike, how to use the hand brakes, using hand signals, etc. Seniors had fun riding the trikes around the courtyard, and when they obtained the necessary skills, they took to the bike lanes and path to practice their skills. Helmet use is required; the city provides helmets for the class.

Having three bikes worked at the start of the program, as the seniors took turns riding. However, as they became stronger riders, the need for another bike became apparent so the city purchased a fourth bike.

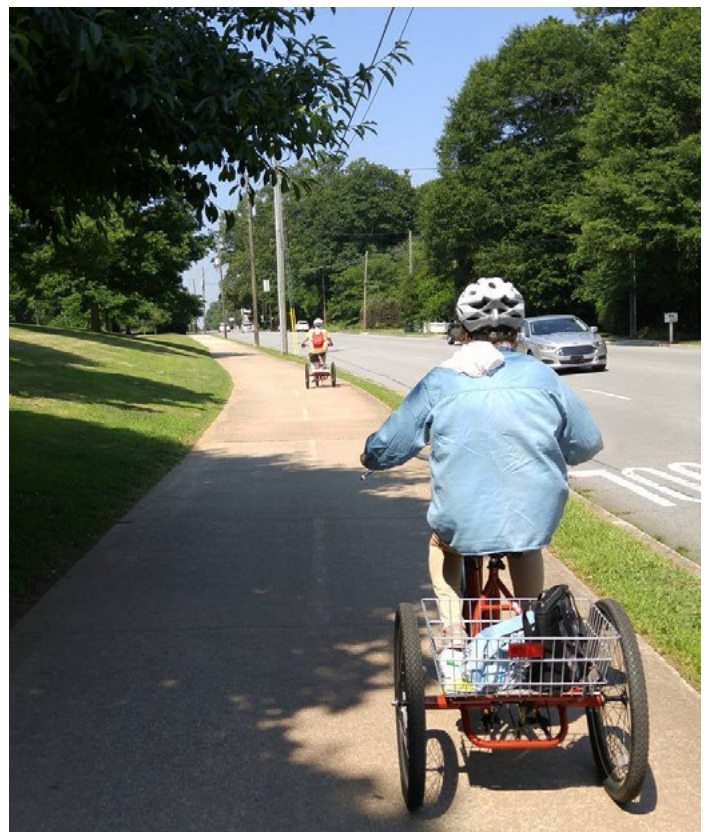
The cost of the program is \$20 or \$25 per month (4 Thursdays in the month, \$20; 5 is \$25) and requires that participants register for the entire month. The class is limited in number of participants due to the number of trikes available, so pre-registration is important.

The city has seen some great successes with this program and a number of new cyclists have taken initiative to get a new bike of their own. There is a woman who participates to help herself rehabilitate after a stroke. The cycling helps her to regain muscle use and balance. This could not be accomplished on a two-wheel bike.

The greatest joy from this program is to see community members who may not have been on a bike since they were much younger gain the freedom that cycling gives. They enjoy the bike, moving along without much effort, and feel young and empowered.

The city purchased the adult tricycles for \$499 each, so they have \$2,000 invested in the program. Other costs are helmets, bike locks and ongoing maintenance when needed. The LCI's are paid \$15 an hour to teach the class, so it is easy to figure out that the city subsidizes the cost of the program. With the result of stronger and more confident senior riders, so the cost is well worth it.

Programs like Silver Spokes help seniors stay active while promoting health and mobility. Photos courtesy of Be Active Decatur



CASE STUDY:

Connecting People and Improving Quality of Life through the Wolf River Greenway



Photo courtesy of Wolf River Greenway

Contributed by Charles “Chuck” Flink, FASLA

Memphis, TN has invested in infrastructure through the city by building bike lanes, greenways, greenlines, and other similar features. Memphis is one of the communities in the United States that offers extensive biking infrastructure to travel around the city and more infrastructure is still forming. It’s noteworthy that bike sharing is part of this infrastructure with 600 bikes at 60 stations within the interstate loop. Furthermore, the connections from Shelby Farms Greenline to the Wolf

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We believe we’re building a corridor of opportunity [...] it’s more than just a 12-foot-wide paved hiking and biking path. As we go through these diverse neighborhoods – downtown, Midtown, Raleigh, Frayser, East Memphis – we can just imagine increasing the connectivity of those neighborhoods.

”

Keith Cole
Executive Director,
The Wolf River
Conservancy (WRC)

River Greenway are becoming of extreme importance to bridge gaps within the system.

The Wolf River Greenway, a protected green space corridor along the Wolf River, includes a paved pathway for non-motorized vehicles. Extending a total of 36 miles and built in two phases, the greenway (this 10- and 12-foot wide pathways) connects neighborhoods from the north end of Mud Island in downtown Memphis, TN through north central Memphis, to Shelby Farms and the cities of Germantown and Collierville, TN.

Many business owners in the area have pointed out that the greenway provides a safe east-west connection to cyclists and pedestrians across the city. Until not too long ago, cyclists had to use a variety of protected and unprotected bike lanes and trails, some of which required them to share the road with motor vehicles. The Wolf River Greenway provides cyclists with a dedicated and protected lane wide enough for bicycles but not for cars.

The Wolf River Greenway was developed to help connect its people and communities, to raise property values, reduce crime, encourage healthy habits, and to improve overall quality of life in the surrounding areas. The greenway intersects with other area trail systems including the Shelby Farms Greenline, providing visitors with access to the largest urban park in the United States, Shelby Farms Park.

Moreover, property values have started to increase thanks to the greenway's adjacency to many properties. Huntington Hills, a community that is only 51% occupied and has gone into foreclosure, its reaping the benefits of the greenway. Renovation on the exterior and revitalization was done in 2016. Thanks to the greenway plans, this community has seen an increase in property values in the area and the surrounding Raleigh community as well.

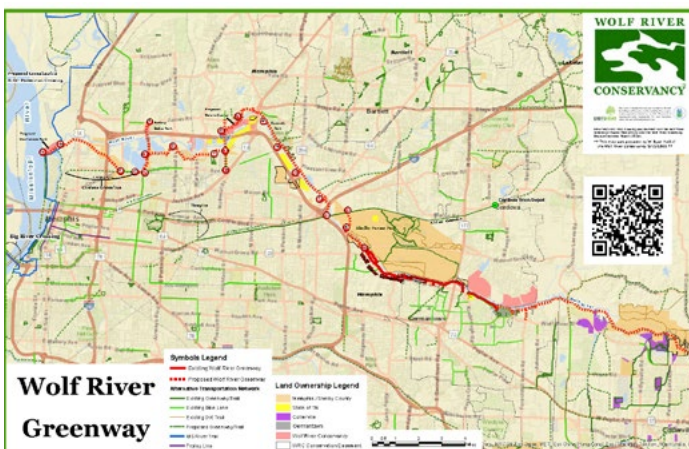
The trail, which follows the path of the Wolf River, runs into wetlands, thick woods, and other natural hiding places within the city's urban core. Other areas of the greenway intersect impoverished areas, providing a transportation alternative for low- and moderate-income residents who may not own a car. A study conducted by Alta Planning + Design on the economic and health benefits of the Wolf

River Greenway found that of the 100,000 residents living within 10-minute walk from the greenway, 2,500 do not own a car and 5,000 are below poverty levels. Therefore, the trail offers green spaces, access to healthy food, transportation, recreation, and exercise opportunities to everyone at no cost positively impacting their quality of life through better access to biking trails. The research also stated that the overall economic impact of the greenway will equal \$14 million in health, transportation, environmental, and economic benefits.

Currently, Germantown is planning on extending the greenway 2.5 miles to Cameron Brown Park. The greenway will be only a mile away from a planned connection to Collierville. According to staff, the paths are used consistently. In two years, the city counted more than 187,000 cyclists and pedestrian on the Wolf River Greenway, a growth of 100% after the greenway was connected to the Germantown segment.

The entire greenway is a \$40 million undertaking. Many organizations, community support, and non-profits have invested in the plans. Foundations and other non-profits have pledged \$12 million while the Tennessee Department of Transportation is investing \$1.7 million. The City of Memphis has also been involved by committing \$1.5 million a year over five years for a grand total of \$7.5 million. Other in-kind and individual donors have contributed about \$600,000. The Wolf River Conservancy oversees the fundraising of the remaining \$8.5 million while the project moves ahead with each segment.

Photos courtesy of Wolf River Greenway



CASE STUDY:

Powering Up for Health and Physical Activity with Bikes at Will Rogers Middle School



Photo courtesy of wabikes.org

Contributed by Cass Isidro, Executive Director, Safe Routes to School National Partnership, and Naomi Harper, Program Director, Will Rogers Middle School

It's an unusual sight to see: dozens of students dressed in matching uniforms riding red bikes along the streets of Fair Oaks, California. As part of the POWERBike program at Will Rogers Middle School in Fair Oaks, CA, students learn about bike safety and the health benefits of cycling, and then venture out into the community. The program does not stop with riding either. Will Rogers Middle School

“

If a student has a problem with a bike, they can come in and bring it in. If they want to learn how to repair a bike, our program is sustainable because we always have access to bikes that students can repair. They're either repairing their own or repairing [other] bikes and then giving back to the community.

Naomi Harper
Program Director,
Will Rogers Middle School

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is home to a bike shop where students learn to repair and maintain bikes. Handlebars, brakes, pedals, and valves are all part of a day's work.

One seventh grade student said, “I love riding bikes. I enjoy it because I love the breeze in your face as you're riding. It just makes you feel good. It can get you healthy and get your muscles going, and it makes your heart rate go up.”

The program started out small when the school received

a \$500 Walk to School grant in 2011 that allowed it to purchase a single bike stand and mobile kit. Over the past few years, the program has expanded significantly. They have taken over a portable classroom, and built bike racks that line the ceilings and walls. They have four student workstations equipped with stands and all manner of wrenches and ratchets. “You get to learn what’s wrong with it and how to fix a certain item,” said another seventh-grade student. At one point when her personal bike broke down at home, she got rid of it. Now, she’d be able to repair it in a heartbeat. At Will Rogers Middle School, where 66% of students qualify for free or reduced lunch, the ability to repair a broken bicycle can make the crucial difference between being able to ride a bike or not having one at all.

Students ride every Friday during science class. “In a one-period time, our students will get on their bikes, go and do creek studies,” said Program Director Naomi Harper, a science teacher at the school. The program’s growth has been made possible by support from community organizations and grants, including organizations like AT&T Pioneers and UCLA. The POWERBike program has also partnered with both the Sacramento County Office of Education and UC Davis Trauma Center to strengthen the bike safety components of the program. The school is now a Helmet Safety Center through UC Davis.

The program has been both empowering and educational for all students at the school. Instructors have worked to link bike repair lessons to curriculum. They’ve had math lessons on circumference and diameter using wheels, and even worked in English and composition lessons by requiring students to write technical manuals about repair

processes. The school has also worked to ensure that no students are excluded from the POWERBike program, purchasing and assembling a surrey for use by students with special needs. The large, red vehicle was funded by a grant from the Healthy Schools program and Kaiser Permanente, and has room for six people to pedal.

In addition to the biking program, Will Rogers Middle School has a very robust physical education program. The students completed a 5K in their physical education class, and their media program promotes physical fitness and wellness on morning announcements. Their Club Live is focused on pedestrian and bicycle safety, conducting surveys and working on a service learning project to include crosswalk painting, signage, and additional ways to improve safety. Staff and students want to do more than just improve and increase biking at their own school. They are determined to give back by taking in and repairing lost, stolen, or abandoned bikes from the Sacramento County Sheriff’s Department and City of Citrus Heights Police Department. The school then returns the like-new bikes to law enforcement agencies who distribute them to children in need during the holidays.

As they develop and hone their skills, students in the POWERBike program have a simple message: “If you have a bike and you need to fix it, please come down to Will Rogers Middle School,” said a seventh-grade student.

The Safe Routes to School National Partnership has more information and resources about creating a robust bicycle program at a school in your community. Visit saferoutespartnership.org to learn more.

Photo courtesy of saferouteswauwatosa.org



CASE STUDY:

Public-Private Partnerships Success in Chattanooga



Photo courtesy of Outdoor Chattanooga

Contributed by Philip Grymes and Schandra “Sunshine” Loveless

Outdoor Chattanooga is a unique division within the Economic and Community Development Department of Chattanooga. Established in 2004 through an initiative aimed at promoting outdoor recreation as a healthy, signature lifestyle for Chattanooga’s residents and visitors, it’s led

“ When we started [On My Own 2 Feet] program, we thought we would be successful if we could help one person per year; We have already exceeded that. One of our participants got a job, and we feel like we played a small part of that. In other cases, we are working to help others to stop smoking cigarettes. Sometimes it’s about baby steps.

Robert Gustafson,
Founder On My Own 2 Feet

”

to tremendous growth in the region’s economy through promotion of the city’s natural and built resources.

For over a decade, Chattanooga has successfully implemented several public-private partnerships to create and fund progressive programs like Bike Chattanooga. Introduced in 2012, Bike Chattanooga provides easy access to bike rentals at 37 self-pay stations located throughout downtown and the Tennessee Riverwalk (a 13 mile non-motorized pathway along the Tennessee River) providing an

alternative way to commute and recreate within the city.

Like many cities, Chattanooga, and traffic congestion, is growing rapidly. Cycling helps ease congestion and promotes health. Increased use of the Bike Share system, and of people utilizing their own bikes, spurred more trail development and bicycle infrastructure. While the Bike Share system has provided some success in reducing traffic congestion, it also created a need for bicycle education and awareness. Outdoor Chattanooga serves this need by offering free educational and entry level programs like Learn to Ride a Bicycle and Bike Commuting 101 as a way to reduce user conflict, increase awareness of cycling laws, create confident riders, and spur economic growth. Classes are taught by League of American Bicyclists Certified Instructors. In 2016, Outdoor Chattanooga served 558 participants in these two programs alone. The Learn to Ride a Bike program reaches 5 to 85 year olds and has a 98% success rate.

More examples of Chattanooga's successful public-private partnerships can be found in the extensive mountain bike trail systems within an hour's drive of the city. Over the past decade, SORBA Chattanooga has partnered with the Tennessee Valley Authority, County, State, and National Parks to build and maintain miles of premium trails. As a result, Chattanooga has become a popular mountain biking destination in the Southeast. To serve interested new riders, Outdoor Chattanooga began an intro to mountain biking course in 2016. Two hours of instruction in a controlled setting, along with use of equipment, help eliminate the barrier of buying equipment just to try the activity. The course covers basic trailside bike maintenance, how to access trails, read trail maps, trail etiquette, and how to connect with local clubs and bike shops if participants want to continue riding. Many participants gain confidence to become trail riders, others don't, but they didn't have to make a large investment before coming to that conclusion.

In addition, Outdoor Chattanooga offers unique tours to further educate the public and increase usership by highlighting trail systems and trail connectivity within the city, while eliminating the need to own equipment. For instance, the Mountain to Town Downhill Mountain Bike Adventure provides a guided tour from the top of Lookout Mountain on gravel trails to the paved Tennessee River Walk and into downtown Chattanooga. Mountain bikes and helmets are provided to participants.

Other non-profit organizations like On My Own 2 Feet and Wheels utilize the free Outdoor Chattanooga programs to help the homeless community improve their fitness, health, and overall happiness by participating in their running and/or cycling program. More importantly, this provides resources and mentoring intended to change lifestyles that lead to employment, housing and independence; which instills confidence through achievement. In March, 2017, On My Own 2 Feet and Wheels added bicycles to their already established running program as many of the target population had physical limitations that made running difficult or impossible. With this addition, the program expanded its impact through fitness, and by providing an affordable means of transportation, a common challenge for those experiencing homelessness. Through donations, each graduate of the bike program receives a new bicycle, helmet, and high quality bike lock. A total of 20 participants were involved in the inaugural program, nine of which graduated and earned a new bike and a sense of independence.

All these examples demonstrate the success that public-private partnerships can have in growth, economy, and positive social and physical impact. It's one of the many reasons why Chattanooga is a great place to live and play and was named Best Town Ever by Outside Magazine in 2011 and 2015. To learn more, visit outdoorchattanooga.com or any of the websites associated with the great organizations listed in this article.

Photo courtesy of Outdoor Chattanooga



RESOURCES

8 80 Cities
880cities.org

American Association of State Highway Transportation Officials (AASHTO) Guidelines
transportation.org

Alliance for Biking & Walking
peoplepoweredmovement.org/site

Alliance for Biking & Walking – Guide to Fundraising Rides
peoplepoweredmovement.org/pdf/RideGuide2ndEdition.pdf

Association of Pedestrian & Bicycling Professionals (APBP)
apbp.org

Atlanta Streets Alive
atlantastreetsalive.com

Boston Bikes – bostonbikes.org/programs/women/overview

Bicycle Coalition of Greater Philadelphia (Women Bike PHL) –
bicyclecoalition.org/our-campaigns/women-bike-phl/#sthash.0OA8fez4.dpbs

Bicycles at Rest
bicycleparkingonline.org

Bicycle Coalition of Maine
bikemaine.org

Bicycle Film Festival
bicyclefilmfestival.com

Bicycle Friendly America (BFA)
bikeleague.org/bfa

Bicycle Helmet Safety Institute (BHSI)
bhsi.org

Bicycle Infrastructure Guide of Mexico City (Guía de Infraestructura Ciclista para la Ciudad de México)
data.consejeria.cdmx.gob.mx/portal_old/uploads/gacetitas/0c37b1746512f388bf98ff67e80bcd33.pdf

Bicycle Transportation Alliance – Educational Programs
btaoregon.org/get-involved/walkbike-education

Bike-Friendly Community Assessment (Teen Version)
nhtsa.gov/staticfiles/nti/pdf/8014-BikeabilityChecklistForYouth.pdf

Bike-to-Work Day – The League of American Bicyclists
bikeleague.org/bikemonth
Bike New York
bike.nyc/

Bikeology Curriculum and Parent Guide – SHAPE America and NHTSA
shapeamerica.org/publications/resources/teachingtools/qualitytype/bicycle_curriculum.cfm

Car Free Day Long Island
carfreedayli.com

Carpool Incentive Programs
bestworkplaces.org/pdf/carpool_June07.pdf

Challenged Athletes Foundation
challengedathletes.org

Ciclociudades Manual
ciclociudades.mx

Ciclovía Recreativa

- To download a PDF version of the “Ciclovía Recreativa Implementation and Advocacy Manual” visit cicloviarecreativa.uniandes.edu.co/english/index.html
- 8 80 Cities Healthiest Practice Open Streets at healthiestpracticeopenstreets.org
- Open Streets Guide at bikewalkalliance.org/storage/documents/reports/OpenStreetsGuide.pdf

Divvy
divvybikes.com

International Bicycle Fund – Curriculum for Youth & Young People Bicycle Maintenance Education Programs
ibike.org/encouragement/youth-curriculum.htm

Federal Highway Administration (FHWA) Safe Routes to School Program
fhwa.dot.gov/environment/safe_routes_to_school

Fix It Map provided by Dero
dero.com/fixitmap/fixitmap.html

Gearing Up
gearing-up.org

GreenTrips
greentripscha.com

Health Funding for Public Transportation
advocacyadvance.org/media/blog/leveraging-health-funding-for-active-transportation-investments

International Bike Fund
ibike.org/encouragement/youth-curriculum.htm

LA Bike Trains
labiket trains.com

League of American Bicyclists
bikeleague.org

- **League of American Bicyclists – Bicycle Friendly America**
bikeleague.org/bfa
- **League of American Bicyclists – Equity Initiative**
bikeleague.org/equity
- **League of American Bicyclist – Model Legislation / Justice for Bicyclists Article**
bikeleague.org/content/model-legislation
- **League of American Bicyclists – Ride Smart**
bikeleague.org/ridesmart
- **League of American Bicyclist – Smart Cycling Tips, Rules of the Road**
bikeleague.org/ridesmart
- **League of American Bicyclists – State Bike Laws**
bikeleague.org/StateBikeLaws

MassBike

massbike.org/education/bike-safety-education

Multicultural Communities for Mobility

multicultimobility.org/programs

National Brotherhood of Cyclists

nabcyclists.ning.com

National Association of City Transportation Officials (NACTO)

For more information on NACTO Urban Bikeway Design Guide, visit nacto.org/publication/urban-bikeway-design-guide

National Complete Streets Coalition

For more information on the recommendations that the Coalition provides, visit the resource page in this document. smartgrowthamerica.org/complete-streets

National Highway Traffic Safety Administration – Resources Guide on the Laws Related to the Pedestrian and Bicycle Safety

nhtsa.gov/people/injury/pedbimot/bike/resourceguide/dldirections.html

New York Summer Streets

nyc.gov/html/dot/summerstreets/html/home/home.shtml

Oregon Bicyclist Manual

oregon.gov/ODOT/HWY/BIKEPED/docs/bike_manual.pdf

PARK(ing) Day

parkingday.org

Pedestrian and Bicycle Information Center

pedbikeinfo.org/index.cfm

- **Pedestrian and Bicycle Information Center – How to Educate Pedestrians and Bicyclists**
pedbikeinfo.org/programs/education.cfm
- **Pedestrian and Bicycle Information Center – Walkability/Bikeability of Your Neighborhood**
pedbikeinfo.org/community/walkability.cfm

People for Bikes

peopleforbikes.org

- **People for Bikes – Building Equity: Race, Ethnicity, Class, and Protected Bike Lanes: An Idea Book for Fairer Cities**
peopleforbikes.org/blog/entry/race-ethnicity-class-and-protected-bike-lanes-an-idea-book-for-fairer-cities

Project for Public Spaces (PPS)

pps.org

Portland by Cycle

portlandoregon.gov/transportation/article/151364

Red, Bike, and Green

redbikeandgreen.com

SRTS (Safe Routes to School)

A Transportation Legacy

saferoutesinfo.org/about-us/mission-and-history/task-force

- **Coordinators by State**
saferoutesinfo.org/program-tools/find-state-contacts
- **National Partnership**
saferoutespartnership.org
- **Moving Ahead Progress in the 21st Century Act (MAP-21)**
saferoutesinfo.org/program-tools/funding

San Francisco Bicycle Coalition

sfbike.org/

San Francisco Bicycle Coalition – Urban Bicycling

sfbike.org/resources/urban-bicycling-workshops

SmartTrips

portlandoregon.gov/transportation/43801

SHAPE America

shapeamerica.org

Sustrans – A pioneer of safe routes to school in the UK

sustrans.org.uk

The Bicycle Friendly AmericaSM program

- **The Bicycle Friendly AmericaSM program – Business quick assessment**
bikeleague.org/bfa/quick-assessment/business
- **The Bicycle Friendly AmericaSM program – Community quick assessment**
bikeleague.org/bfa/quick-assessment/community
- **The Bicycle Friendly AmericaSM program – University quick assessment**
bikeleague.org/bfa/quick-assessment/university

The Southern Off-Road Bicycle Association (SORBA)

sorba.org

Transport London – Temporary Cycle Parking at Events Guide

content.tfl.gov.uk/temporary-cycle-parking.pdf

TriMet Bike Guide

trimet.org/bikes

Trip Reduction Incentive Programs (TRIPS)

bestworkplaces.org/pdf/carpool_June07.pdf or [cleanairpartnerstx.org/resources/Carpool Incentive Programs - EPA.pdf](http://cleanairpartnerstx.org/resources/Carpool%20Incentive%20Programs%20-%20EPA.pdf)

United States Adaptive Adventures

adaptiveadventures.org

United States Department of Transportation (USDOT) – Federal Highway Administration (FHWA)

fhwa.dot.gov

- **Bicycle and Pedestrian Guidance**
fhwa.dot.gov/environment/bicycle_pedestrian/guidance/index.cfm
- **Bicycle and Pedestrian Provisions of the Federal-aid Program**
fhwa.dot.gov/environment/bicycle_pedestrian/resources/bp-broch.cfm
- **Formula Grants for Rural Areas – 5311**
transit.dot.gov/funding/grants/grant-programs/formula-grants-rural-areas-5311
- **National Scenic Byways Program**
fhwa.dot.gov/discretionary/2012nsbp.cfm
- **Urbanized Area Formula Grants**
transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307

United States Handcycling Federation (USHF)

ushf.org

visitbestworkplaces.org/pdf/carpool_June07.pdf or [cleanairpartnerstx.org/resources/Carpool Incentive Programs - EPA.pdf](http://cleanairpartnerstx.org/resources/Carpool%20Incentive%20Programs%20-%20EPA.pdf)

Victoria Transportation Policy Institute – Bicycling Parking Provisions Guidelines

vtpi.org/tdm/index.php#parkingfb

Vision Zero Network

visionzeronetwork.org

Walk+Bike

btaoregon.org/get-involved/walkbike-education

Wiki Listing by State

en.wikipedia.org/wiki/List_of_United_States_bicycle_advocacy_organizations

YES, Inc. – Youth Educational Sports: Inspiring Institutions to Introduce Bicycling as Viable Sport and Healthy Competition

yesports.org

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877.762.7563 | playcore.com