

The Many Benefits of Complete Streets

March 2015



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What are Complete Streets?



Complete Streets are streets for everyone, no matter who they are or how they travel.



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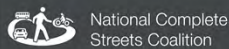
The streets of our cities and towns are an important part of our communities. They allow children to get to school and parents to get to work. They bring together neighbors and draw visitors to neighborhood stores. These streets ought to be designed for everyone – whether young or old, on foot or on bicycle, in a car or in a bus – but too often they are designed only for speeding cars or creeping traffic jams.

Now, in communities across the country, a movement is growing to “complete” the streets. States, cities, and towns are asking their planners and engineers to build roads that are safer, more accessible, and easier for everyone. In the process, they are creating better communities for people to live, play, work, and shop.

Photo: Charlotte NC DOT

What are Complete Streets?

Safe Comfortable Convenient



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Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a complete street.

Photos, L-R: Pamela Palma, pedbikeimages.org; Dan Burden, Walkable and Livable Communities Institute;

What are Complete Streets?

Safe Comfortable Convenient



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Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.

Photos (all): Dan Burden, Walkable and Livable Communities Institute



The streets of our cities and towns are an important part of our communities. They allow children to get to school and parents to get to work. They bring together neighbors and draw visitors to neighborhood stores. These streets ought to be designed for everyone – whether young or old, on foot or on bicycle, in a car or in a bus. Complete Streets are streets for everyone. They are designed and operated to enable safe access for people who are walking, bicycling, driving, or riding public transportation. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.

Photo: Laura Sandt, pedbikeimages.org



This is what complete streets is about – making sure our transportation network works for all users every time there’s a new project.

Photo: Michael Hicks, Minneapolis, MN, Washington Avenue at the University of Minnesota’s East Bank Campus

Benefits: Older Adults

By 2025, nearly 1 in 5 Americans will be 65 or older.

About ½ of all non-drivers over the age of 65 would like to get out more often.



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Source: U.S. Census Bureau Estimates, 2009 National Household Travel Survey
Photo: Dan Burden, Walkable and Livable Communities Institute

Benefits: Older Adults

Complete Streets =
better design for
older folks driving
and walking.

Complete Streets =
staying active and
involved in
communities.



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Following a Complete Streets process will balance the sometimes-competing needs of older drivers and older pedestrians by slowing vehicles down where necessary, creating an easily navigated multimodal network of streets, and improving visibility. Proven methods to create Complete Streets for aging pedestrians include retiming signals to account for slower walking speed, constructing median refuges or sidewalk bulb-outs to shorten crossing distances, and installing curb ramps, sidewalk seating, and bus shelters with seating. Improved lighting, signage, and pavement markings are among the measures that benefit drivers of any age, particularly older drivers.

Photo: Dan Burden, Walkable and Livable Communities Institute



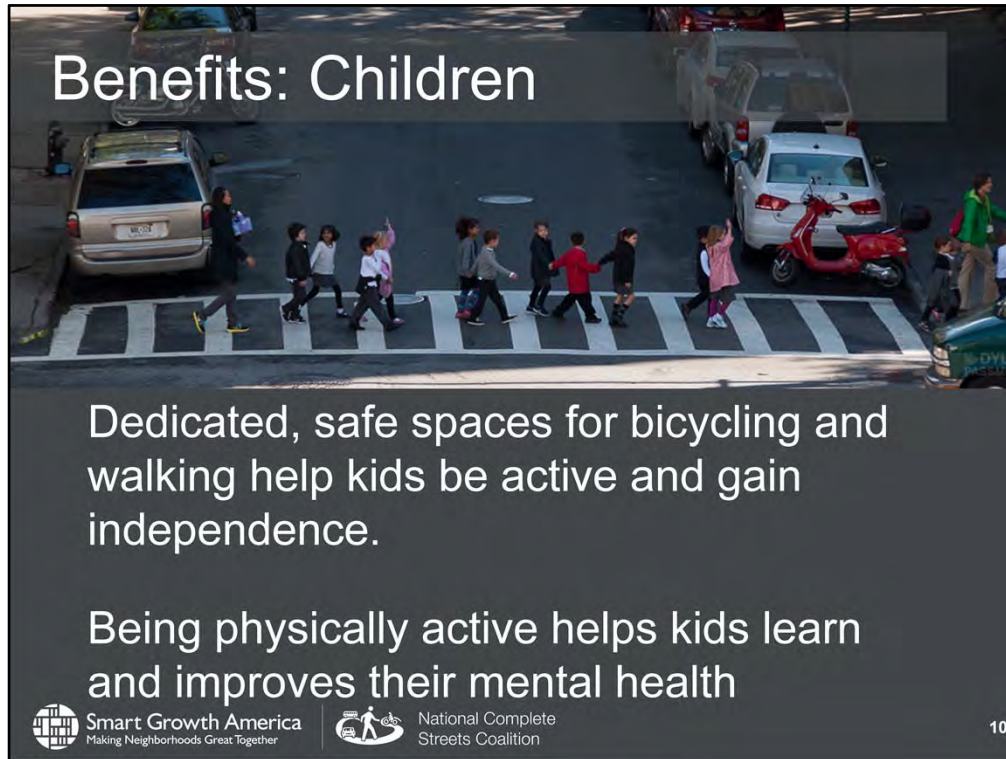
34.5% of kids and youth aged 2 to 19 are overweight or obese. The prevalence of obesity among American youth has almost tripled since 1980 (7% in 1980 to 18% in 2012). The most recent data shows no increase in obesity rates in children between 2003-2004 and 2011-2012, and obesity rates have declined in children ages 2 to 5. However, obesity in children puts them at higher risk for sleep apnea, prediabetes, and low self-esteem. Children who are obese also have a significantly higher risk of being obese as adults.

Physical inactivity contributes to these astonishingly high numbers. 2012 data indicates that only a quarter of teens meet the daily recommended level of physical activity. Experts recommend 60 minutes of both moderate and vigorous activity per day for teens between the ages of 12 and 15.

Source:

Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *Journal of the American Medical Association* 2014;311(8):806-814, Centers for Disease Control and Prevention

Photo: Dan Burden, Walkable and Livable Communities Institute



The built environment – including our streets – affects children’s ability to be active. In addition to recreational activity, “incidental” activity is an important component in healthy living. Incidental activity includes biking or walking to school or to a friend’s house. Complete Streets provide safe space for walking and bicycling by adding sidewalks, bike lanes, or other paths and appropriately slowing vehicular traffic.

A growing body evidence links moderate physical activity and aerobic exercise to improved academic performance, mood, and cognition.

For more information, see the American Academy of Pediatrics policy statement “The Built Environment: Designing Communities to Promote Physical Activity in Children.”

Sources:

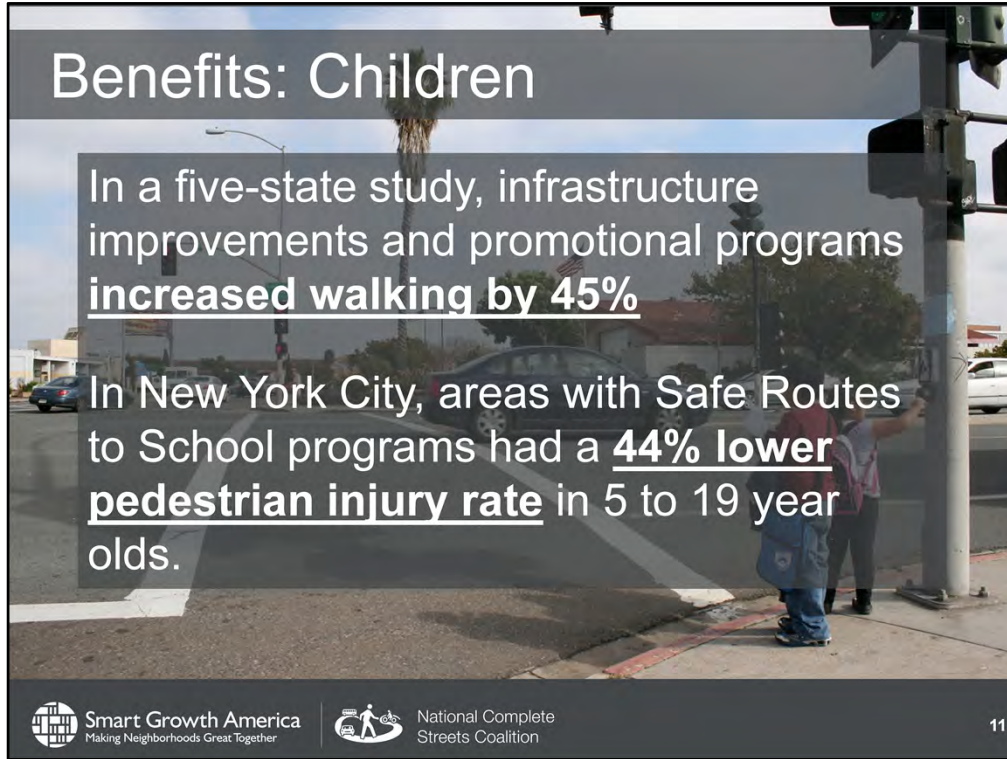
Bartholomew, J. B., & Jowers, E. M. (2011). Physically active academic lessons in elementary children. *Preventive Medicine*, 52, S51-S54.

Singh A., Uijtdewilligen L., Twisk J., van Mechelen W. & Chinapaw M. (2012). Physical Activity and Performance at School. *Arch Pediatr Adolesc Med*. 122 (1), 49-55.

Lee. C, Hopkins J. Effect of aerobic exercise on cognition, academic achievement,

and psychosocial function in children: a systematic review of randomized control trials. *Prev Chronic Dis.* 2013 Oct 24;10:E174. doi: 10.5888/pcd10.130010.

Photo: Dylan Passmore



Benefits: Children

In a five-state study, infrastructure improvements and promotional programs **increased walking by 45%**

In New York City, areas with Safe Routes to School programs had a **44% lower pedestrian injury rate** in 5 to 19 year olds.

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The Safe Routes to School National Partnership reports that 13% of children between the ages of 5 and 14 walk to school, even though 48% of children walked to school in 1968. Although 31% of children that live within a mile of school, only 38% walked or bicycled to school, and 41% arrived in a vehicle.

Improvements to infrastructure such as crosswalks and sidewalks, and promotion of active commute options, have been shown to make a difference. In a five state study of Safe Routes to School programs in Texas, Florida, Mississippi, Alabama, Wisconsin and Washington state, completed projects resulted in a 45% increase in walking and a 25% increase in bicycling.

In New York City, a study of pedestrian injury rates in areas with Safe Routes to School programs showed a 44% lower pedestrian injury rate for school-aged children during school hours (7am to 9am, 2pm to 4pm during the school year). Areas without a Safe Routes to School program showed no change in injury rates.

Sources:

Safe Routes to School National Partnership, "U.S. Travel Data Show Decline in Walking and Bicycling to School Has Stabilized (2010)

DiMaggio C., Li G. Effectiveness of a Safe Routes to School Program in Preventing School-

Age Injury. Pediatrics (2013).

Orion Stewart, Anne Vernez Moudon, and Charlotte Claybrooke (2014) Multistate Evaluation of Safe Routes to School Programs. American Journal of Health Promotion: January/February 2014, Vol. 28, No. sp3, pp. S89-S96.

Orion Stewart, Anne Vernez Moudon, "Moving Forward: As Assessment of Safe Routes to School Programs in Five States", Active Living Research Presentation, February 2013.

Photo: Hanna Kite, San Diego, CA

Benefits: People with Disabilities

Almost 1 in 5 Americans have some type of disability.

Complete Streets = attention to detail for travelers with disabilities.

Complete Streets can reduce isolation and dependence.



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According to 2010 Census data, 56.7 million Americans (18.7% of the population) have some type of disability. About 38.3 million people (12.6% of the population) has a severe disability. This includes individuals with auditory, visual, and cognitive disabilities, dementia, mental illness, or that are unable to live independently.

Complete Streets allow everyone to travel to and from work, school, and other destinations with the same level of safety and convenience, whether or not they have mobility, vision, or cognitive disabilities. Complete Streets also help people who are coping with temporary disabilities as well as those pushing strollers, pulling wheeled groceries or luggage, or managing large packages.

Complete Streets policies provide flexibility to transportation professionals and give them room to be creative in developing solutions that promote accessible travel. Operating under a policy can prompt a deeper analysis and encourage them to work with community members with disabilities. In roadway design, Complete Streets means attention to details at intersections, such as installing curb ramps, audible or tactile signals for blind pedestrians, and/or providing longer crossing times; along pedestrian routes by providing smooth sidewalks free of obstacles, with usable benches; and at transit stops with ample space to approach, wait, and board safely.

Complete Streets policies remove barriers to independent travel by considering the

needs of all users at the outset of every transportation project. Providing transportation choices for everyone, including those with disabilities, improves livability by connecting citizens to their community and by reducing dependence on more costly alternatives, such as paratransit or private transportation service.

Source: census.gov, Americans With Disabilities: 2010



1. Crosswalks and sidewalks near stops and stations are necessities. Every transit trip requires crossing the street. Complete streets connect transit users to their destinations.

2. Buses get stuck in traffic, and their progress is further slowed by the constant need to merge back into the flow of traffic after pulling over to pick up passengers. Stop-and-go bus service discourages use, increasing traffic congestion by those who choose to drive instead. While solutions exist that can help speed service, transit agencies often don't have much say in tweaking road design for bus use. A complete streets policy enables decision makers to prioritize transit in roadway improvements – making trips faster and more reliable.

Photo: John LaPlante, Madison, WI



Implementing Complete Streets leads to increases in the number of people riding public transit. Improving and expanding existing bus service allows more riders to reach their destinations faster. Bus Rapid Transit in cities such as Boston, New York City, Cleveland, and Los Angeles, improves service and therefore attracts more riders. Improving service also means increasing the number of miles and areas served by transit.

Select Bus Service on Fordham Road in the Bronx resulted in a 10 percent increase in bus ridership.

Bus Rapid Transit on the Health Line in Cleveland provided over 10 million rides in two and a half years. The Bus Rapid Transit lines continues to see increases in ridership, with 60% more ridership compared to the old bus line, and over 90% customer approval ratings.

Los Angeles's Orange and Silver Metro Lines provided 1,053,147 rides in September 2012. Statistics from the same month in 2011 and 2010 show an increase in total rides- September 2011: 929,828 and September 2010: 817,925. Data from 2014 shows that ridership on the Orange and Silver line has continued to gradually increased while other routes have saw no growth.

Boston's Silver Line had an average of 30,026 riders every weekday in 2010. Source:

Source:
NYC DOT

Greater Cleveland Regional Transit Authority, Sustainable Pittsburgh
MBTA
Metro, Curbed Los Angeles.

Photo Source: Flickr user rllayman, Boston. MA



Why are we doing this?

By routinely responding to the needs of people on foot, public transportation, and bicycles, walking, riding bikes, and riding buses and trains will be safer and easier for everyone. People of all ages and abilities will have more options when traveling to work, to school, to the grocery store, and to visit family.

We can build streets that are part of our communities, that benefit our communities – from increased capacity on existing roads, to improved health, to providing transportation choices.

Photo: Seattle DOT

Benefits: Safety

There were 32,719 traffic fatalities in the U.S. in 2013. Of these fatalities:

21,132 were people in cars

4,735 were people walking

743 were people on bicycles

National Highway Traffic Safety Administration: Fatality Analysis Reporting System 2010



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4,668 fatalities were motorcyclists and 190 fatalities were other/unknown.

Source: U.S. DOT NHTSA, "2013 Motor Vehicle Crashes: Overview"

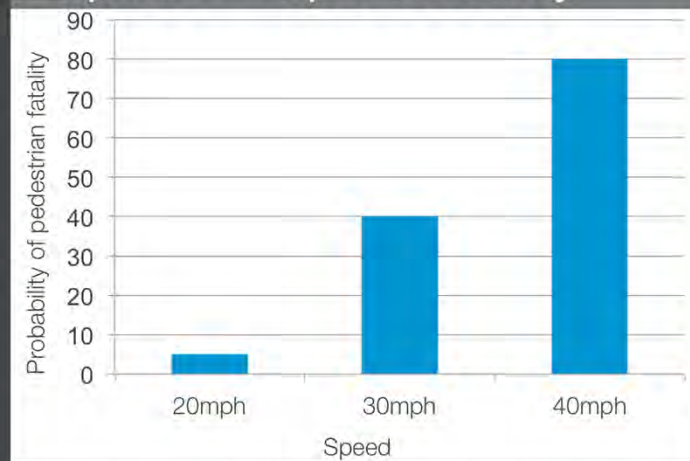


Source: Ernst, Michelle and Lilly Shoup. (2009). Dangerous by Design. Transportation for America and the Surface Transportation Policy Partnership.

Photo: Joan Hudson, Austin, TX

Benefits: Safety

Slower speeds = improved safety



W.A. Leaf and D.F. Preusser, "Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups," US Department of Transportation, National Highway Traffic Safety Administration (1999).



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When a pedestrian is hit by a car going 40mph, the likelihood of death is 80 percent. If the car is going 30mph, the likelihood drops to 40 percent and if the car is going 20mph, the likelihood drops to 5 percent.

Source: W.A. Leaf and D.F. Preusser, "Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups," US Department of Transportation, National Highway Traffic Safety Administration (1999).

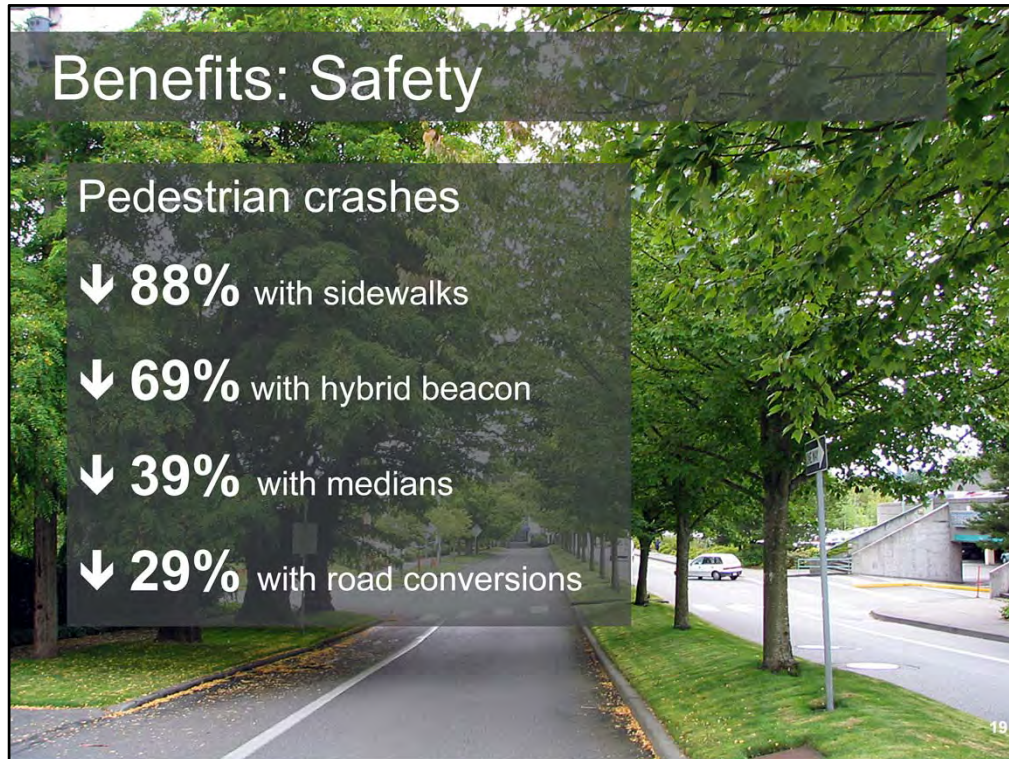


Photo by Dan Burden, Olympia WA

Source: FHWA, An Analysis of Factors Contributing to “Walking Along Roadway” Crashes: Research Study and Guidelines for Sidewalks and Walkways. Report No. FHWA-RD-01-101, FHWA, Washington D.C., 2001.

Source: <http://safety.fhwa.dot.gov/provencountermeasures/>

Benefits: Health

Risk of obesity:



Frank, L., et. al. (2004). Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars. American Journal of Preventative Medicine 27(2).



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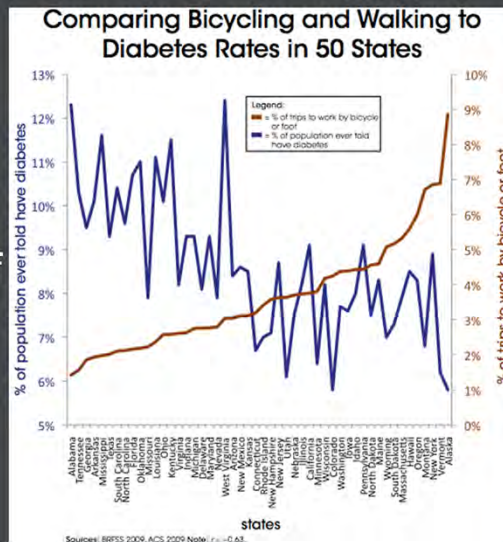


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Benefits: Health

States with the lowest levels of biking and walking have, on average, the highest rates of obesity, diabetes, and high blood pressure.



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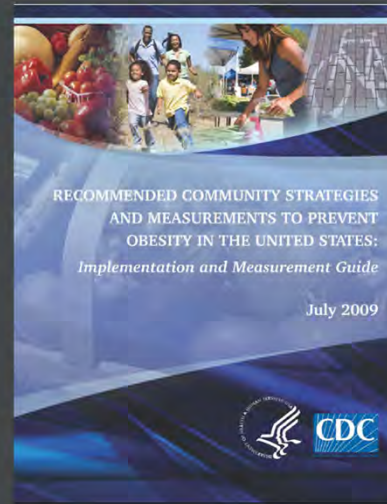
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In contrast, states with the highest levels of biking and walking have, on average, the lowest rates of obesity, diabetes, and high blood pressure.

Source: *Bicycling and Walking in the United States: 2012 Benchmarking Report*, Alliance for Biking & Walking

Benefits: Health

The Centers for Disease Control and Prevention recommend adoption of Complete Streets policies as a **strategy to prevent obesity.**



Benefits: Health

Women who walk or bike 30 minutes a day have a lower risk of breast cancer.

A 30-minute round-trip bicycle commute is associated with better mental health in men.

People who live in walkable neighborhoods get more exercise than those who do not.



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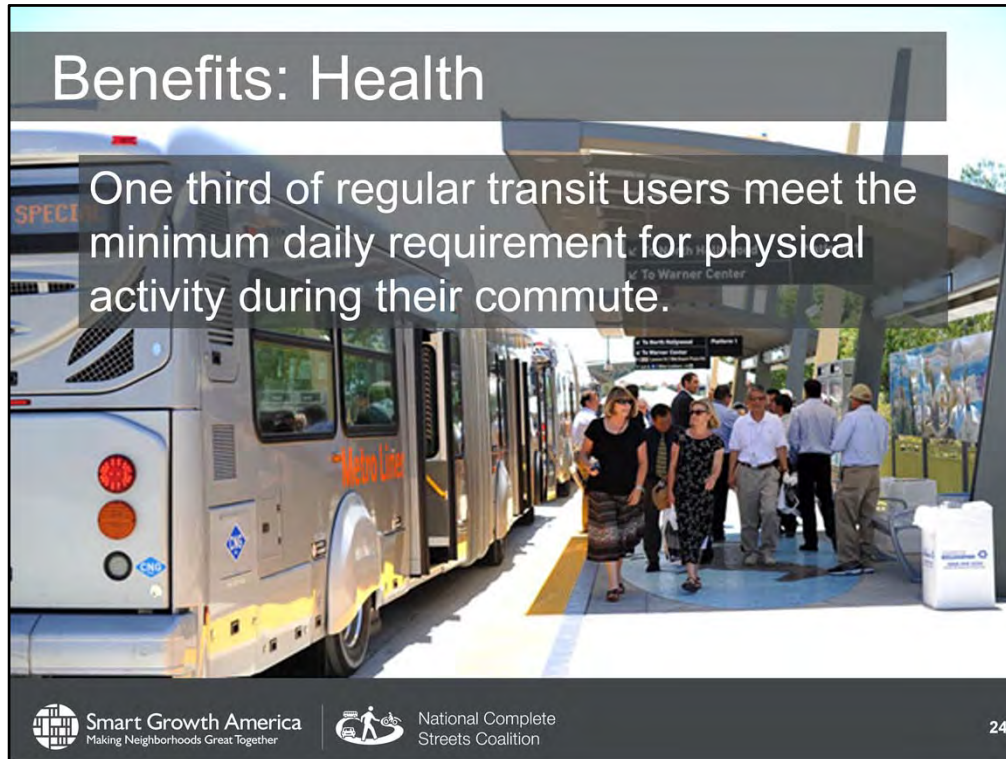
Photo: Dan Burden, Walkable and Livable Communities Institute

Sources: American Public Health Association

Luoto, R., et al. 2000. *The effect of physical activity on breast cancer risk: A cohort study of 30,548 women*. European Journal of Epidemiology, 16, 973-80.

Ohta, M., et al., 2007. *Effect of the physical activities in leisure time and commuting to work on mental health*. Journal of Occupational Health, 49, 46-52.

Dill, Jennifer and Theresa Carr. (2003). "Bicycle Commuting and Facilities in Major US Cities: If You Build Them, Commuters Will Use Them." Transportation Research Record: Journal of the Transportation Research Board, No. 1828, TRB, 2003, pp 116-123.



A recent study found that in large urban areas with a rail system, transit users are more than 72% more likely to walk 30 or more minutes per day than users without a rail system. The U.S Department of Health and Human Services recommends 150 minutes of moderate intensity physical activity, such as brisk walking, per week for adults to maintain health and prevent chronic disease. This translates to roughly 21 minutes a day.

In a study in Atlanta, transit trips were 123% more likely to meet recommendations for daily physical activity. The relationship between a transit trip and meeting the daily physical activity recommendation were statistically significant even after controlling for ethnicity, age, income, neighborhood density, and other features of the built environment.

Sources:

Besser, L. M. and A. L. Dannenberg (2005). *Walking to public transit steps to help meet physical activity recommendations*. American Journal Of Preventive Medicine 29(4): 273-280.

Amy L. Freeland, Shailendra N. Banerjee, Andrew L. Dannenberg, and Arthur M. Wendel. *Walking Associated With Public Transit: Moving Toward Increased Physical Activity in the United States*. American Journal of Public Health: March 2013, Vol. 103, No. 3, pp. 536-542.doi: 10.2105/AJPH.2012.300912.

<http://www.ncbi.nlm.nih.gov/pubmed/23327281>

Lachapelle, U., & Frank, L. (2009). Transit and Health: Mode of Transport, Employer-Sponsored Public Transit Pass Programs, and Physical Activity *Journal of Public Health Policy*, 30 DOI: [10.1057/jphp.2008.52](https://doi.org/10.1057/jphp.2008.52)

How much physical activity do adults need?, Centers for Disease Control and Prevention, <http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html>

Photo: NACTO

Benefits: Economy

Washington, DC: Barracks Row/8th Street SE



\$8 million public investment in streetscape improvements 2003-2004

\$8 million in private investment in following two years

32 new business establishments

\$80,000 in sales tax annually

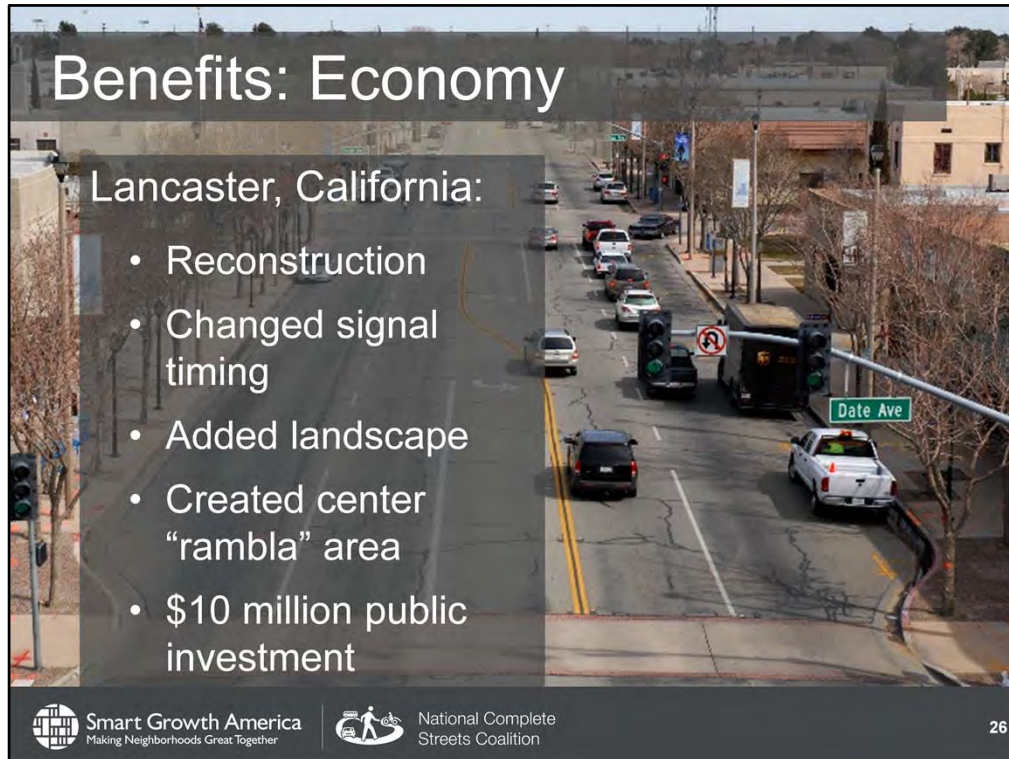
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In 1999 when local merchants, residents and property owners came together to create the Barracks Row Alliance (now Barracks Row Main Street), things looked good: crime numbers were dropping, home sales were rising, new employment was coming - but businesses were not. DDOT worked with the main street organization, Advisory Neighborhood Commissions, and residents to develop a signature streetscape and spent \$8 million in the area. That investment was one factor that helped give Barracks Row the extra edge it needed to really begin to attract new businesses and investment. It created an environment that felt safe and looked like a special place.

Source: District Office of Planning, Transportation Research Board Circular E-C100, Linking Transportation and Land Use: A Peer Exchange. July 12-13, 2005.



After decades of decline, Lancaster, CA’s downtown, centered on Lancaster Boulevard, had become home to rising crime and unemployment rates. Automobiles regularly travelled at speeds of 40 to 50 miles per hour. Many of the intersections were controlled by traffic signals and residents believed that the street was dangerous to cross and unpleasant to walk and shop along.

Source:

City of Lancaster

U.S. EPA

Photo: City of Lancaster



The city used a Complete Streets approach for its 2010 redesign of Lancaster Boulevard, rebranded as The BLVD. The nine-block revitalization project invites visitors walk or bicycle from store to store. It features a center plaza for walking and community events, angled parking, enhanced crosswalks, abundant landscaping and lighting, and outdoor seating.

Lancaster's redesign revitalized the city's commercial core while making the street safer and more inviting for people walking and biking. Automobile traffic on The BLVD remains steady but at a speed that allows people walking and biking to feel comfortable. Overall traffic collisions are down 50 percent and injury-related collisions plummeted 85 percent.

The project has also spurred economic investment and job growth in the area. The BLVD was awarded the U.S. Environmental Protection Agency's 2012 Smart Growth award for Overall Excellence.

Source:

City of Lancaster

California Redevelopment Association IMPLAN Jobs Calculator
U.S. EPA

Photo: U.S. EPA

Benefits: Economy

After 2007 redesign:

49% ↑

in retail
sales on 9th
Ave in
Manhattan.

49% ↓

in commercial
vacancies in
Union Square.



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In 2007, NYC DOT put in the first protected bicycle lanes in the U.S. on 8th and 9th Avenues in Manhattan. The redesign included a bike lane protected from traffic by a lane of parking, mixing zones for bicycles and left-turning cars, and pedestrian safety islands. By planning for safety and inclusion of all users, the city's DOT helped bring more people to the Avenues, particularly people on foot and bicycle. As a result, 9th Avenue has seen a 49 percent increase in retail sales at locally based businesses, compared to 3 percent increase borough-wide. The redesign on North Union Square included a protected bicycle lane, simplified crosswalks, and a pedestrian plaza. The NYC DOT writes that "New York's streets serve more functions than simply moving people and goods. In such a densely populated city, the streets and sidewalks are places to congregate, relax, and enjoy being out in public." By enhancing public space, the NYC DOT helped decrease the number of commercial vacancies in Union Square by 49 percent, compared to a 5 percent decrease borough wide. Complete Streets not only improves safety and access for users of the street, but has the potential to improve economic vitality as well.

Source: New York City Department of Transportation (2012) *Measuring the Street: New Metrics for 21st Century Streets*

Photo: New York City Department of Transportation. Photo cropped for use.

Benefits: Economy



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New York City's DOT implements Complete Streets ideas to improve local economies by improving public transportation as well. Select Bus Service on Fordham Road in the Bronx began in 2008. The implementation of SBS included off-board fare payment to speed boarding times and dedicated lanes for buses. As a result, bus speeds increased 20 percent and total number of bus riders increased 10 percent. In addition, Fordham Road's locally-based businesses saw a 71 percent increase in retail sales, compared to 23 percent borough-wide. By improving bus service, NYC DOT brought more riders, and therefore more retail success, to Fordham Road.

Photo: NYCDOT via Streetsblog

Source: New York City Department of Transportation (2012) *Measuring the Street: New Metrics for 21st Century Streets, The Economic Benefits of Safe Streets*



Benefits: Job Creation

Under the 2009 stimulus:

- Transit projects = **71%** more jobs per dollar than road projects.
- Every \$1 billion spent on:
 - highway projects = 2.4 million job hours
 - transit projects = 4.2 million job hours

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Complete Streets projects funded through the American Recovery and Reinvestment Act of 2009 created more jobs than projects on road repair and new construction. Under the stimulus, transit projects created nearly twice the job hours for every \$1 billion than highway projects. The investment in Complete Streets through transit infrastructure creates jobs, fostering local economies- more jobs means more money getting pumped into local economies.

Transit projects not only create jobs through construction, they also spur commercial and real estate development and are a long-term investment in a community. “Injecting money into transportation projects, the thinking goes, is an especially potent jobs-creation tool because it not only puts construction workers and contractors to work quickly, it also lays the groundwork for future economic growth and development” –David A. Graham, *Newsweek* Feb. 3, 2011

Source: Smart Growth America (2011) *Recent Lessons form the Stimulus: Transportation Funding and Job Creation*

Photo: Michael Hicks via flickr.com



Benefits: Job Creation

For each \$1 million invested:

- Bicycle projects = 11.4 jobs created
- Pedestrian projects = 9.6 jobs created
- Auto-only project = 7.8 jobs created

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Source: Garrett-Peltier, Heidi. Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts. Political Economy Research Institute at University of Massachusetts Amherst. June 2011.

Photo: TransitNerds via flickr.com from Houston, TX



1. Walkable neighborhoods have higher home values than other neighborhoods, illustrating another link between Complete Streets goals and economic vitality. Walk Score, an online resource, allows residents to see how their neighborhood ranks on a 100-point scale gauging walkability. According to a study from CEOs for Cities, for each additional point on the 100-point Walk Score scale, home values increase \$500-\$3,000. Higher home values in walkable neighborhoods indicate that people value being able to walk around their neighborhood, accessing shops, restaurants, and civic institutions like schools, libraries, and places of worship. Complete Streets improves walkability, which in turn raises home values and promotes economic vitality.

2. People want to live *and* work in walkable neighborhoods- Complete Streets benefits commercial areas, as well as residential areas. In Washington, D.C., commercial areas in highly walkable and accessible neighborhoods have 75 percent higher office rents than commercial areas in drivable or suburban neighborhoods, indicating an overwhelming preference for locating in walkable neighborhoods.

Walkable neighborhoods mean higher real estate values

Source: Cortright, Joseph. (2009). *Walking the Walk: How Walkability Raises Housing Values in U.S. Cities*. CEOs for Cities <http://www.ceosforcities.org/work/walkingthewalk>

Source: Source: Leinberger, Christopher (2012). *DC: The WalkUp Wake-Up Call* The George Washington University School of Business <http://business.gwu.edu/Walkup.pdf>

Photo from flickr user dewitahs

Benefits: Economy

Millennials want to work in areas with high quality transportation and high quality of life.

Businesses that encourage active transportation attract young professionals and better business.



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Due to rising numbers of young adults and retiring baby boomers, the number households without children is growing- by 2025 only 25 percent of all U.S. households will have children. More and more, these two groups are choosing to live in centrally located neighborhoods- expressing similar preferences for living in neighborhoods with easy access to jobs, entertainment, shopping, and transit.

A study revealed that in 36 of 51 metro areas surveyed, more young adults are choosing to live in or close to urban center. Areas with higher concentrations of college graduates have higher rates of local employment growth. Complete Streets implementation helps create attractive neighborhoods by creating amenities for people walking, biking, and riding transit. Given the growing number of young adults and retiring baby boomers looking for centrally located neighborhoods, investing in Complete Streets makes sense for communities looking to attract new residents and support local economies.

Sources:

U.S. Environmental Protection Agency. (2012). *Smart Growth and Economic Success: Benefits for Real Estate Developers, Investors, Businesses, and Local Governments*.
http://www.epa.gov/smartgrowth/pdf/economic_success.pdf

Leinberger, C. & Doherty, P. (November 2010). *The Next Real Estate Boom*. Washington Monthly.

http://www.brookings.edu/articles/2010/11_real_estate_leinberger.aspx.

Shapiro, J. (2006). *Smart Cities: Quality of Life, Productivity, and the Growth Effects of Human Capital*. The Review of Economics and Statistics. 88(2): 324-335.

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Cortwright, J. (2011). *Young and Restless 2011*. CEOs for Cities.

<http://www.ceosforcities.org//research/the-young-andrestless-in-a-knowledge-economy/>.

Photo: Julia Diana, PBIC

Benefits: Economy

“Young people do not want to work in office parks anymore... We’re seeing this big change in this country. **It’s not political...it’s more generational...** This is where we need to think very differently, because if you don’t, you will be left behind.”

-Mitchell Silver, Former Chief Planner, Raleigh, N.C.



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As highly educated, young workers locate in vibrant, urban neighborhoods, employers looking to hire them are following suit. Companies are reconsidering decisions to locate in suburban office parks in order to attract young workers and improve satisfaction amongst current employees. Many companies are relocating or choosing to set up shop in neighborhoods with access to housing, transit, restaurants, grocery stores, and shops. In Atlanta, BellSouth Corporation consolidated 10,000 employees from 25 locations into 3, transit-accessible offices. 95 percent of employees reported being satisfied with the move. Local governments and business owners can work together to create attractive areas for working and living through a Complete Streets approach.

Sources: U.S. Environmental Protection Agency. (2012). *Smart Growth and Economic Success: Benefits for Real Estate Developers, Investors, Businesses, and Local Governments*. http://www.epa.gov/smartgrowth/pdf/economic_success.pdf

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Surveys from 2004 and 2011 show that the majority of Americans want short commutes, sidewalks, places to walk to, and more transportation options. Community stakeholders, including local businesses, can attract talented workers by promoting the community’s Complete Streets goals and the availability of active transportation options.

Sources: U.S. Environmental Protection Agency. (2012). *Smart Growth and Economic Success: Benefits for Real Estate Developers, Investors, Businesses, and Local Governments*. http://www.epa.gov/smartgrowth/pdf/economic_success.pdf

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Photo: Bike Walk Twin Cities

Benefits: Reduce Costs

“The advantage of inserting a dialogue about all users at the earliest stages of project development is that it provides the designers and engineers the best opportunity to create solutions at the best price.”

- James Simpson, Former Commissioner, NJDOT



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Benefits: Reduce Costs

500 miles of Washington state highway system are 'main streets.'

Over ten years, 47% of projects on these streets had scope, schedule, or budget changes resulting in delay.



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Photo: Washington Department of Transportation

Benefits: Reduce Costs

Pilot project consulted community during planning, resulted in Complete Streets approach.

In 10 previous years, a Complete Streets process would have saved an average of **\$9 million** per Main Street project – **about 30%** – in reduced scope, schedule, and budget changes.



<http://www.wsdot.wa.gov/research/reports/fullreports/733.1.pdf>



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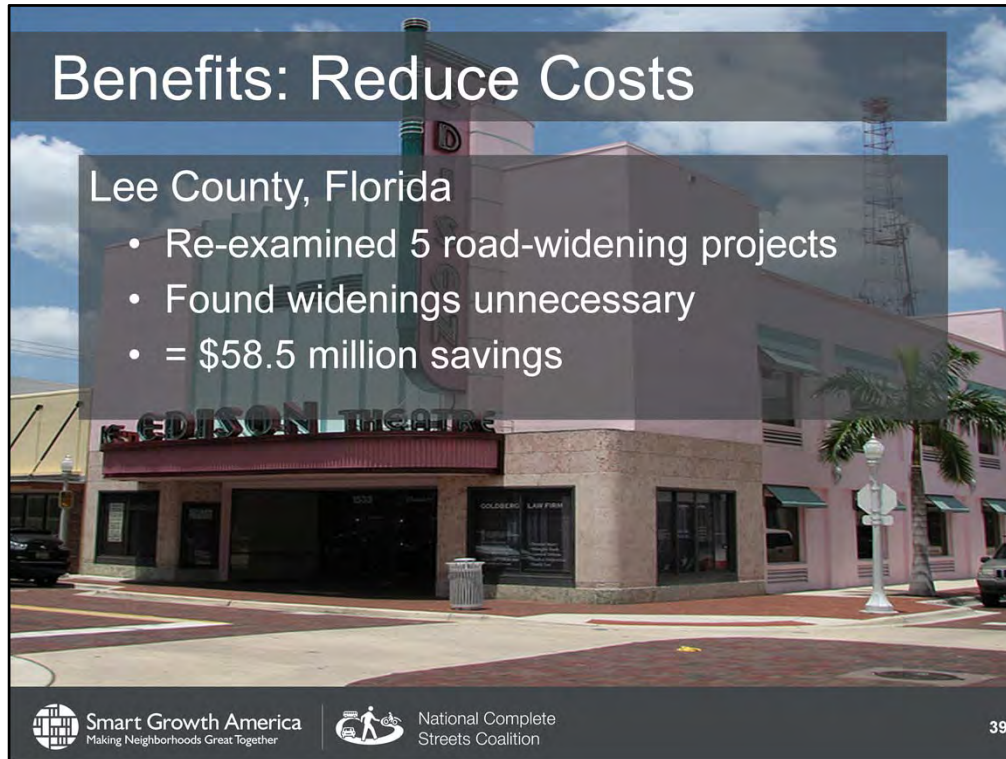
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The pilot project incorporated community input at the beginning of the process and incorporated sidewalks, safe crossings, on-street parking, and other features important to small towns; the savings are realized through reduced schedule, scope, and budget changes.

The state Department of Transportation determined that a Complete Streets process would save an average of \$9 million per project, or about 30 percent, when rehabilitating highways that serve as small-town Main Streets.

Photo: Washington Department of Transportation



As part of their Complete Streets implementation process, Lee County, FL staff re-examined their list of road projects approved in the Metropolitan Planning Organization's 2035 Long Range Transportation Plan (LRTP). As a result of this Complete Streets analysis, staff determined that five road projects slated for widening from two to four lanes should be reduced to a two lane divided roadway with median and turn lanes. The county asked for amendments to the 2035 LRTP to reflect these changes in roadway plans. The changes are estimated to reduce the cost of these five projects by \$58.5 million, a significant savings for the county and its taxpayers that will also create streets that are better for all users.

Flickr.com user Ferret111 (Andy Callahan):
<http://www.flickr.com/photos/ferret111/7647975252/>

Benefits: Reduce Costs

Richfield, Minnesota road needed replacement after sewer work. Priced at **\$6 million to replace road as is.**

MnDOT re-evaluated transportation needs and found no need for wide roadway. Reallocated road space for all users, **saved \$2 million**

“Feels like home”



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76th Street in Richfield was destined to be torn up to accommodate necessary expansion and reconstruction of sewer lines. According to consulting engineer Jack Broz of H.R. Green Co., the original estimate for the sewer work and reconstruction of the roadway was approximately \$6 million.

A collaborative approach to reallocate the existing roadway space resulted in a better balance point in serving Complete Streets goals and the needs of all users as well as meeting the needs for wastewater and water management, and a regional trail linkage.

The road diet resulted in an approximate reconstruction cost savings of \$2 million, or one-third of the original cost that had been estimated for reconstruction. This road diet approach still satisfies the mobility and safety needs of motorists, freight haulers and transit riders while greatly improving mobility and safety for pedestrians and bicyclists and the quality of life for the adjoining community.

Benefits: Capacity



Source: www.tobinbennett.com, Des Moines, Iowa- August 2010. More info at www.facebook.com/Urban.Ambassadors

Expanding automobile capacity as a means to alleviate congestion woes has not worked- In California, adding road capacity through additional lanes and mileage on state highways did not result in less congestion. Instead, sixty to seventy percent of increased road capacity was filled with new automobile traffic within just five years; at the municipal level, 90% was filled over the same period.

As we have learned, half of all trips taken in the U.S. are under three miles and nearly 30 percent of all trips are less than one mile. Providing travel choices- through improved pedestrian and bicycle access and improved public transportation service- can reduce the number of trips made in cars at peak congestion hours. For instance, parents who are concerned it is unsafe for their children to walk or bike to school, often choose to drive them, even though the trip may be a short one. These trips occur during peak congestion hours and add to automobile congestion. Complete Streets provides safer choices for children to commute to school, which eases congestion for drivers going longer distances because they are not competing for space on the road with drivers going short distances.

As this photo shows, public transportation, walking, or biking take up less space on the road than driving. Complete streets can move more people while using less space. Getting

more productivity out of the existing road and public transportation systems is vital to reducing congestion.

Sources: Hansen, Mark and Yuanlin Huang. (1997). "Road Supply and Traffic in California Urban Areas," *Transportation Research A*, Vol. 31, No. 3, 1997, pp. 205-218.

Schrank, David and Lomax, T. (2009) *Urban Mobility Report*. Texas Transportation Institute.



Benefits: Provide Choices

Improvements in 4 communities over 4 years

- = 22% ↑ in walking overall
- = 49% ↑ in bicycling overall
- = 23.1% ↑ in utilitarian trips made by foot
- = 4.7% ↑ in utilitarian trips made by bicycle

16 million miles traveled on foot or bicycle that would have otherwise been driven in **one year**.

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In 2007, the FHWA began distributing money to four communities- Columbia, MO; Minneapolis, MN; Marin County, CA; and Sheboygan County, WI- for a pilot demonstration project called the Non-motorized Transportation Pilot Program. The program administered \$25 million annually among the 4 communities to help them build and improve infrastructure networks for non-motorized transportation, including walking and bicycling.

Source: Federal Highway Administration (2012) *Report to the U.S. Congress on the Outcomes of the Nonmotorized Transportation Pilot Program SAFETEA-LU Section 1807*

Photo: Bike Walk Twin Cities

Benefits: Provide Choices

Residents are 65% more likely to walk in a neighborhood with sidewalks.



Cities with more bike lanes per square mile have higher levels of bicycle commuting.



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Tremendous amount of evidence that when you put in sidewalks people will walk, and when you put in bike facilities, people will bike.

Sources: Giles-Corti, B., & Donovan, R.J. (2002). "The relative influence of individual, social, and physical environment determinants of physical activity." *Social Science & Medicine*, 54 1793-1812.

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Top Photo: Elvert Barnes, PBIC, Washington, D.C. or
<http://www.pedbikeimages.org/pubdetail.cfm?picid=1895>

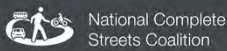
Bottom Photo: Jane Healy via Steven Vance on Flickr, Chicago, IL, Kinzie Street

Benefits: Provide Choices

Adding bike lanes in Marin County, CA =

↑ 366% bicyclists
on weekdays

↑ 540% bicyclists
on weekends

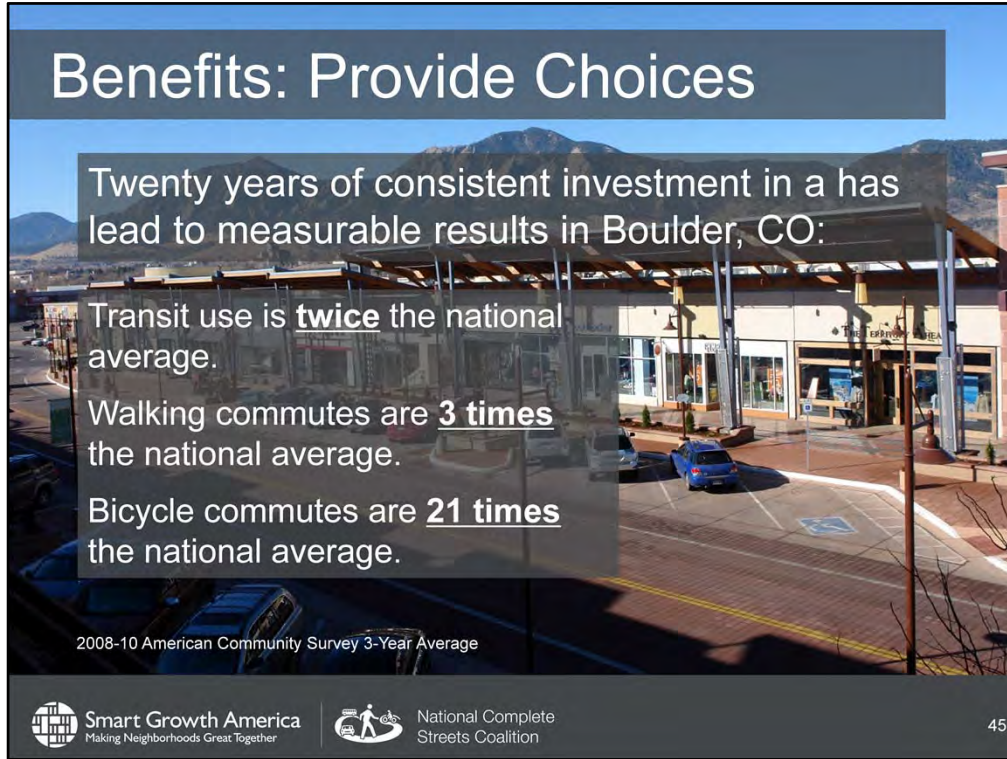


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As part of the NTPP grant, BikeWalkMarin in Marin County, CA added bike lanes to the busy Alameda del Prado. The resulting 366% increase in weekday bicyclists and 540% increase in weekend bicyclists shows that people will change their travel patterns when provided with options.

Source: Federal Highway Administration (2012) *Report to the U.S. Congress on the Outcomes of the Nonmotorized Transportation Pilot Program SAFETEA-LU Section 1807*

Photo: Walk Bike Marin



Benefits: Provide Choices

Twenty years of consistent investment in a has lead to measurable results in Boulder, CO:

- Transit use is **twice** the national average.
- Walking commutes are **3 times** the national average.
- Bicycle commutes are **21 times** the national average.

2008-10 American Community Survey 3-Year Average

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Twenty years of consistent investment in a multimodal system has lead to measurable results. These numbers represent **commuting to work** only, so actual use of these modes in all trips is likely higher.

Transit: 9.6% locally, 4.9% nationally; Walking: 9.1% locally, 2.8% nationally; Biking: 10.5% locally, 0.5% nationally

Source: 2008-10 American Community Survey Three Year Average, U.S. Census Bureau:
<http://www.census.gov/acs/www/>

"29th Street Mall Boulder CO" by Hustvedt - Own work. Licensed under CC BY-SA 3.0 via Wikimedia Commons -
http://commons.wikimedia.org/wiki/File:29th_Street_Mall_Boulder_CO.jpg#mediaviewer/File:29th_Street_Mall_Boulder_CO.jpg

Benefits: Provide Choices

Transportation is second largest expense for families: ~18% of budget

Low income households can spend up to 55% of budget on transportation.

Complete Streets give people more control over their expenses.



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Studies on housing and transportation costs show that, across the country, there are far fewer affordable neighborhoods when you account for transportation costs in addition to housing costs. In Portland, OR, the city's Complete Streets efforts help residents save \$1.1 billion a year total, or roughly 1.5% of all personal income earned. The benefits of inexpensive housing can be offset by higher transportation costs if households have to rely on one mode of transportation: the personal automobile. In cities implementing Complete Streets policies, residents can drive less, take shorter trips, and use more public transit – saving them money each trip. Households with access to good transit service can spend only 9 percent of their budget on transportation costs.

Sources:

U.S. Environmental Protection Agency. (2012). *Smart Growth and Economic Success: Benefits for Real Estate Developers, Investors, Businesses, and Local Governments*.

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<http://www.reconnectingamerica.org/resource-center/browse-research/2009/tod-201-mixed-income-housing-near-transit-increasing-affordability-with-location-efficiency/>

Data: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey 2010

Photo: Richard Masoner, <http://www.cyclelicio.us/>

Benefits: Provide Choices



“It breaks my heart when our transportation systems fails anyone in America because I know how much people depend on it...Part of how we measure a good, safe, decent place to live has to do with access to transportation.”

— *Anthony Foxx, Secretary of Transportation, U.S. DOT*



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Photo: Transportation For America

Benefits: Livable Communities

Walkable communities =
happier communities

Residents of walkable
communities:

- are more likely to be socially engaged and trusting
- report being in good health and happy more often



Shannon H. Rogers, et al. Examining Walkability and Social Capital as Indicators of Quality of Life at the Municipal and Neighborhood Scales. (2010)



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A study from Texas of people who moved to walkable community, found that the people who moved had a higher number of social interactions, such as saying hello or chatting with a neighbor, or asking to borrow items. They also felt that they could count on their neighbors if they needed to, and that their neighborhood was “close-knit”.

Sources: Shannon H. Rogers, John M. Halstead, Kevin H. Gardner and Cynthia H. Carlson. Examining Walkability and Social Capital as Indicators of Quality of Life at the Municipal and Neighborhood Scales. (2010). Applied Research in Quality of Life, published online 28 Oct 2010.

Zhu X, Yu CY, Lee C, Lu Z, Mann G. A retrospective study on changes in residents’ physical activities, social interactions, and neighborhood cohesion after moving to a walkable community (2014) Preventive Medicine, publishes online Aug 23 2014.

Photo: Dan Burden, Walkable and Livable Institute, walklive.org

Benefits: Livable Communities

"Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park—all without having to get in your car."

— Ray LaHood, Former
Secretary of Transportation,
U.S. DOT



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Photo: U.S. Department of Transportation



Many Complete Streets solutions use less pavement such as right-sized roads, rechannelizations/road conversions, and skinny streets, and many can be accomplished without building overly wide streets. Rain gardens and bioswales can be combined with refuge islands and curb extensions to improve stormwater management and safety.

Photo: Greg Raisman, <http://www.flickr.com/photos/gregraisman/>

Benefits: Cleaner Air

Transportation accounts for **nearly 1/3** of all greenhouse gas emissions.

Switching to walking or bicycling for short trips = **reduce CO2 emissions by 12 to 22 million tons/year.**



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Switching from driving to walking or bicycling for short, local trips, those under a mile, helps reduce carbon dioxide emissions by 12 to 22 million tons/year.

Sources: Davis & Hale. (2007, September). Public Transportation's Contribution to U.S. Greenhouse Gas Reduction. SAIC.

Gotschi, T. & Mills, K. (2008). Active Transportation for America. Rails to Trails Conservancy



Photo: Portland, OR (Greg Raisman)



For more information

- Model policies & reports
 - *Best Complete Streets Policies*
 - *Local Policy Workbook*
- Implementation resources
- Latest news

www.completestreets.org

www.smartgrowthamerica.org

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Our website is home to many resources, including policy tracking and examples, information on changing policy from advocacy to implementation, links to research and publications. From our website, you'll also find our blog, newsletter, and twitter feed, which are great ways to stay up to date on Complete Streets and transportation issues in general.

Photo: Dan Burden, Walkable and Livable Communities Institute

National Complete Streets Coalition Steering Committee

AARP	Institute of Transportation Engineers
AECOM	National Association of City Transportation Officials
Alliance for Biking & Walking	National Association of Realtors
America Walks	Nelson\Nygaard
American Planning Association	Smart Growth America
APTA	SRAM
American Society of Landscape Architects	Stantec
Association of Pedestrian and Bicycle Professionals	SvR Design Company



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Smart Growth America is the only national organization dedicated to researching, advocating for and leading coalitions to bring smart growth practices to more communities nationwide.

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