Walkability Workshop: Kalamazoo, MI

Prepared by the Walkable and Livable Communities Institute for the Disability Network Southwest Michigan
August 2014

Table of Contents

Photos on the cover depict scenes in and near downtown Kalamazoo, MI as observed by the WALC Institute project team in August 2014. This page, to the right: with placemaking already as a community-backed focus, Kalamazoo is poised to take the next steps toward walkability and access for all.

Acknowledgements

Joel Cooper, Chief Executive Officer
Michele McGowen, Advocacy/Community Education Program Manager
Disability Network Southwest Michigan
517 E Crosstown Pkwy
Kalamazoo, MI 49001-2867
(269) 345-1516
http://www.dnswm.org

Dan Burden, Co-Founder
Kelly Morphy, Executive Director
Robert Ping, Technical Assistance Manager
Ian Thomas, Consultant
Walkable and Livable Communities Institute
2023 E. Sims Way #121
Port Townsend, WA 98368
Office: (360) 385-3421
Email: community@walklive.org
Web: www.walklive.org

A special thank you to the
Jim Gilmore, Jr. Foundation

The *Walkability Workshop*

Various trends are changing the projections for future travel demands in North America; that is, they are changing our understanding of the type of transportation systems and neighborhoods people want now and will want in the future. Aging populations, rising fuel prices, growing traffic problems, increasing health and environmental concerns, and changing consumer preferences are all increasing demand for active modes of transportation, such as walking, cycling and public transit.

The benefits of active transportation, placemaking and "complete" streets—herein, collectively referred to as "walkability"—are numerous. They improve public health and reduce healthcare costs. They contribute to a sense of "place" and community, and reduce the need for parking spaces. They help alleviate pressure on roadways that are nearing saturation and have very little "grow room." In fact, walkability is the lowest-cost way to keep car dependency from growing and, therefore, keep motorized traffic moving. Beyond that, more than 25 percent of all daily trips made in the U.S. are within walking distance and 60 percent are within bicycling distance. Having the option to walk or bike—or move naturally—just makes sense. It also is particularly important to aging populations, knowledge workers, Millennials and other groups that often make up the target demographics for city-building efforts.

The walkability and livability of a community—whether urban, suburban or rural—is heavily influenced by land-use and transportation planning, design and policies. Where walkability is supported through policies, programs and projects that favor active living, the entire community benefits.

As described in other parts of this report, it will be the rebuilding, re-purposing, retrofitting and infilling of land and infrastructure in places like Kalamazoo and surrounding areas—along with the redesign of critical intersections and corridors throughout town—that will improve prosperity, health and well-being.

Engaging Community Members in a Meaningful Way

Achieving such goals anywhere in the country, however, requires that community members are engaged in a meaningful way in assessing their built environment and prioritizing changes. A group of community members who are vested in this way helps build further support for the plans to be adopted and projects to be undertaken.

Toward that end, the WALC Institute has developed the Walkability Workshop to engage communities in making their streets and neighborhoods more walkable, livable, healthy and sustainable. The goal of the workshop is to build capacity by promoting a shared language amongst residents, government staff and elected officials; to illustrate through examples and audits how walkability and livability benefit a community and how they can be achieved; and to inspire each participant to become involved in the movement towards active living.

Why *Walkability Matters*

Throughout the country, we have applied advanced engineering to move *more* cars and to move them *faster*. The result too often has been streets that accommodate cars but deter people from active modes of transportation such as walking, biking and using transit. Land uses like strip malls, cul-de-sacs, poorly sited schools, and single-use zoning tend to compound the problem and perpetuate a dependency on automobiles. Further, transportation engineering often places focus on vehicle mobility at the expense of others. These factors matter greatly because the built environment plays a significant role in health and well-being by either encouraging or discouraging physical activity.

Today, two out of three American adults 20 years and older is overweight or obese. In 2008, about half of all adults 18 years and older in the U.S. had at least one of six chronic illnesses: cardiovascular disease, arthritis, diabetes, asthma, cancer or chronic obstructive pulmonary disease (COPD).

While we know that physical activity is good for us, 60 percent of Americans do not meet the daily recommendations set by the Centers for Disease Control and Prevention. Yet, people who have sidewalks in their neighborhoods reported more minutes of recreational walking. And adults living in highly walkable neighborhoods engage in 41 minutes more of total physical activity per week than those in low-walkability neighborhoods.

Further, consider that:

- A study in the *Journal of the American Planning Association* in 2006 found that for every five-percent increase in walkability, a community could expect more than a 30-percent increase in "physically active travel" and nearly a quarter-point reduction in individual body mass index, which is a common indicator for obesity and health. The increase in walkability was also correlated with more than a five-percent reduction in air pollutants that are associated with vehicle travel.
- Analysis published in *Preventive Medicine* in 2010 indicates that installing sidewalks on all of a city's streets would increase physical activity enough to offset weight gain in about 37 percent of the population, leading to healthcare savings likely to be enough to repay the cost of installing the sidewalks.

The built environment also reflects our social inequities. Seniors are over-represented in intersection fatalities by a factor of more than two-to-one. Seniors also are at great risk for social isolation once they lose their ability to drive. In fact, half of all non-drivers 65

Residents and visitors display a desire to use active modes of transportation in and around Kalamazoo.

There are many reasons to support active living and walkability.

- Active transportation incorporates exercise into one's daily schedule and eliminates the stress of driving on congested streets.
- Health care costs are reduced when people lead active lifestyles.
- A five- to 10-mph reduction in traffic speeds increased adjacent residential property values by roughly 20 percent. Reduced traffic volumes on residential streets increases home values by an average of 18 percent.
- Active transportation infrastructure is far less expensive than building new roads and parking.
- Active transportation provides opportunities for social connections and community building.
- A 10-point increase in Walk Score increases commercial property values by 5 percent to 8 percent.
- An EPA study indicates compact infrastructure is up to 47-percent less expensive than conventional development patterns.
- Active transportation is good for tourism. In 1992, an estimated 32,500 visiting cyclists spent $13.1 million in Vermont.[23] Similarly, 680,000 visitors bicycle in North Carolina's Outer Banks yearly, generating $60 million annually. About 1,400 jobs are supported locally in North Carolina from expenditures made by bicyclists.

years and older—about 4 million Americans—stay at home on a given day because they lack transportation.

But improved health and social equity are not the only reasons to modify the built environment to be more supportive of active transportation. Forty percent of baby boomers say they don't have enough savings for retirement. This means seniors will continue to work and transportation choices will become critically important. As the senior population grows faster than any other age group, towns that are addressing walkability are better suited to meet their needs.

When cities and towns provide equitable access to a complete transportation system, they send the message that people—not just cars—belong. No matter one's age, income, ability, or mode of transport, the place works and the benefits are tremendous. Our street design can minimize those things that halt productivity (congestion, accidents) because users know where they belong, how to navigate and how to interact with others.

In too many parts of the U.S., bicycling and walking are considered recreational activities. However, when we focus on walkability and its economic benefits, we build strong communities that are more prosperous and that work for all.

Factors improving walkability include:

- Destinations within walking or biking distance of each other, such as retail shops located near offices and housing, and schools located within neighborhoods.
- Street connectivity, ideally in a fine-grain grid without unnecessary cul-de-sacs. Also, sidewalks or trails that allow people to move comfortably and safely.
- Road widths that foster lower vehicle speeds. The wider a road or a vehicle travel lane is (or appears to be), the faster the driver tends to travel. The faster cars are traveling, the less safe and comfortable a person feels walking or bicycling.
- A sense of security and "eyes on the street." This feeling of comfort is created by orienting the homes and buildings toward the street, and providing transparency—occupied buildings and homes with windows and doors at the street level—so occupants can watch over the street.

Key Walkability Concepts

** Also, see the Active Living Toolbox attachment for a series of fact sheets by AARP and the WALC Institute addressing several of the most common misconceptions about the tools of livability.*

Active Transportation: Also known as non-motorized transportation, this includes walking, bicycling, using a wheelchair or using "small-wheeled transport" such as skates, a skateboard or scooter. Active modes of transportation offer a combination of recreation, exercise and transportation. (See Victoria Transport Policy Institute, www.vtpi.org.)

Aging in Place: Also called, "Living in Place." The ability to continue to live in one's home safely, independently and comfortably, regardless of age, income or abilities. Living in a familiar environment and being able to participate in family and other community activities. (See National Aging in Place Council, www.ageinplace.org.)

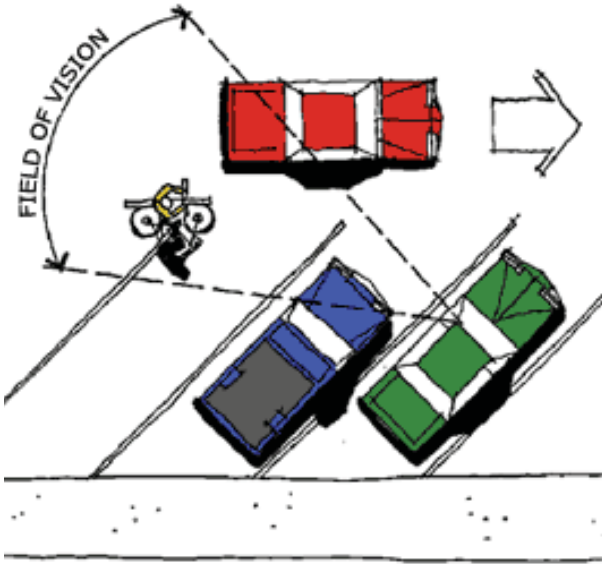
Charrette: [pronounced, "shuh-RET"] A collaborative session to solve design problems that usually involves a group of designers working directly with stakeholders to identify issues and solutions. It is more successful than traditional public processes because it focuses on building consensus. (See Walkable and Livable Communities Institute, www.walklive.org.)

Complete Streets: Roads that are designed for everyone, including people of all ages and abilities. Complete Streets are accessible, comfortable for walking and biking, and include sidewalks, street trees and other amenities that make them feel "complete." (See National Complete Streets Coalition, www.completestreets.org.)

Head-Out Angled Parking: Also called "back-in" or "reverse" angled parking, this is arguably the safest form of on-street parking. It offers multiple benefits, including creating a sight line between the driver and other road users when pulling out. Additionally, head-out parking allows the driver to load their trunk from the curb, instead of adjacent to the travel lane. And for drivers with young children, seniors or others who need extra help, the open car doors direct passengers to the safety of the sidewalk behind the car, not into traffic. The process of parking in a head-out angled spot is simple – a driver signals their intention, slows, pulls past the spot and then backs into it, which is roughly equivalent to making only the first maneuver of parallel parking.

Livability: In the context of community, livability refers to the factors that add up to quality of life, including the built and natural environments, economic prosperity, social stability and equity, educational opportunity, and culture, entertainment and recreation possibilities. (See Partners for Livable Communities, www.livable.org.)

Above: Head-out angled parking is safer for all people, including those driving, biking and walking. Below: This diagram from the City of Northampton, MA illustrates one of the benefits of head-out angled parking: a driver's ability to see oncoming traffic as they pull into the travel lane from their parking spot.



Median Crossing Island: A short island in the center of the road that calms traffic and provides pedestrian refuge. They can be six to 12 feet wide and 20 to 80 feet long. They should be landscaped with low, slow-growth ground cover, and tall trees without branches or leaves at ground height that help motorists see the islands well in advance but don't obstruct sight lines.

Mini Circles: Also called "mini traffic circles," these are intersections that navigate vehicles around a small island about eight to 15 feet in diameter that is either lightly domed or raised. When raised, a mini traffic circle should be visible from hundreds of feet away, creating the feeling of a small park in the neighborhood. The circles should be designed to reduce speeds to 15 to 18 mph at each intersection. A proper number of them will reduce vehicle speeds to 22 to 25 mph along the corridor while helping traffic flow more smoothly due to the decreased number of complete stops.

Rotaries: Also sometimes called traffic circles, rotaries are a form of an intersection that navigates cars around very large circulating islands. An entire traffic circle can be as big as a football field. And can include stop signs and signals. They are not the same as roundabouts or mini circles. Rotaries are cumbersome and complicated and can induce higher speeds and crash rates. Many rotaries in North America and Europe are being removed and replaced with the preferable roundabout.

Roundabouts: Also called "modern roundabouts," they navigate cars around a circulating island, usually up to 60 feet in diameter. Roundabouts are ideal for collector and arterial roads, and at freeway on-off ramps. They eliminate the need for cars to make left turns, which are particularly dangerous for pedestrians and bicyclists. Properly designed, roundabouts hold vehicles speeds to 15 to 20 mph. They can reduce injury crashes by 76 percent and reduce fatal crashes by 90 percent. (See the Insurance Institute for Highway Safety's website at http://www.iihs.org/research/topics/roundabouts.html) Roundabouts also can increase capacity by 30 percent by keeping vehicles moving. When installing roundabouts in a community for the first time, care should be taken to make roadway users comfortable with the new traffic pattern and to educate them about how to navigate roundabouts properly and to yield as appropriate. For more information about roundabouts, see the Federal Highway Administration's educational video about roundabouts, at http://bit.ly/fhwasafetyvideo.

Modern Roundabouts

A LIVABILITY FACT SHEET

Every day in the U.S. more than 20 people are killed at traffic intersections, and many more are seriously injured.[1] Roundabouts — circular intersections that move traffic counterclockwise around a central island — can help reduce these deaths and injuries. Roundabouts are calmer and safer than conventional intersections and have been deemed a "proven safety counter-measure" by the U.S. Department of Transportation.[2]

Modern roundabouts — often the size of a baseball field — differ from rotaries or traffic circles, which can be as big as the stadium itself. Roundabouts feature lower, safer vehicle speeds. They can be 80 feet across with single lanes carrying 25,000 vehicles a day or larger at 200 feet, with double lanes and 45,000 vehicles a day.[3]

Personal injuries and fatalities plummet as much as 90 percent in modern roundabouts when compared to conventional intersections.[4] Roundabouts cause drivers to slow down, ideally to less than 20 mph, which reduces the risks to both pedestrians and drivers.

Because roundabouts can handle 30 to 50 percent more traffic than conventional intersections, they reduce travel delays. [4] Since roundabouts can be designed to be aesthetically pleasing, they help create a sense of place.

By January 2014, roundabouts graced over 2,000 intersections in the U.S., with more planned.[5] Given their safety and placemaking benefits, roundabouts should be considered for many more of the three million intersections in the U.S.

1. U.S. Department of Transportation's Federal Highway Administration (FHWA) (n.d.), safety.fhwa.dot.gov. Modern Roundabouts: A Safer Choice. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10023/transcript/audio_no_speaker/
2. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. Proven Safety Countermeasures. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_005.htm
3. U.S. DOT FHWA (n.d.), fhwa.dot.gov. Roundabouts: An Informational Guide. http://www.fhwa.dot.gov/publications/research/safety/00067/000674.pdf
4. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. http://www.fhwa.dot.gov/resourcecenter/teams/safety/teamsafe_rndabout.pdf
5. Kittelson & Associates, Inc. (August 2000), roundabout.kittelson.com. Modern Roundabouts. Retrieved Feb. 3, 2014, http://roundabout.kittelson.com/Roundabouts/Search

Road Diet: On an overly wide road that has too many vehicle travel lanes to be safe, lanes can be removed and converted to bike lanes, sidewalks, a buffer between the travel lanes and sidewalks, on-street parking, a landscaped median or some combination thereof. A common road diet transforms a four-lane road without bike lanes into a three-lane road (one travel lane in each direction with a center turn lane or median) with bike lanes and street trees. (See Walkable and Livable Communities Institute, www.walklive.org.)

Below and below left: Fact sheets produced by AARP and the WALC Institute provide more information about the value of, misconceptions about and best practices related to some of the most important emerging tools of walkability and livability.

Road Diets

A LIVABILITY FACT SHEET

Most drivers base their travel speed on what feels comfortable given the street design. The wider the road, the faster people tend to drive and, the faster the car, the more severe the injuries resulting from a crash.[1] Research suggests that injuries from vehicle crashes rise as the width of a road increases.

To protect both pedestrians and drivers, many communities are putting their roads on "diets" by reducing street widths and vehicle lanes. The gained space is being reallocated toward other ways of getting around — such as walking, bicycling and public transit.

The most common road diet involves converting an undivided four-lane road into three vehicle lanes (one lane in each direction and a center two-way left-turn lane).[2] The remaining fourth lane space can be used to create such features as bicycle lanes, pedestrian crossing islands, bus stops, sidewalks and on-street parking.[3]

Road diets work best on streets that have daily traffic volumes of 8,000 to 20,000 vehicles. When done properly, a road diet improves the performance and efficiency of the street and makes it safer for all users.

For instance, by having pedestrians walk across only one lane of traffic at a time — rather than up to four or more — a road diet reduces the risk of crashes and serious injuries. At the same time, motorists experience a shorter delay while waiting at traffic lights and other crossings.[4]

A road diet can help a neighborhood become a more desirable place to live, work and shop, which in turn can be a boost to businesses and property values.

Wider sidewalks lined by trees and dotted with benches, bicycle racks, streetlights and other useful additions help create a lively, attractive streetscape. Bike lanes, on-street vehicle parking, curb extensions and "parklets" (tiny parks created from former parking spots) can be used to provide a buffer between people who are walking and motor vehicles on the move.

1. Federal Highway Administration, *Proven Safety Countermeasures*. Retrieved March 4, 2014, http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.pdf
2. Safe Routes to School National Center (November 2013), "Safe Routes to School Online Guide." http://guide.saferoutesinfo.org/engineering/tools_to_reduce_crossing_distances_for_pedestrians.cfm#diet
3. Tan, C.H. Federal Highway Administration, FHWA-HRT-11-006. Vol. 75, No. 2. (September/October 2011), "Going on a Road Diet." *Public Roads*, http://www.fhwa.dot.gov/publications/publicroads/11septoct/05.cfm

A road diet on East Boulevard in Charlotte, N.C., reduced travel speeds, bicycle and pedestrian injury rates and the number of rear-end and left-turn collisions. (Photo courtesy city of Charlotte)

AARP Real Possibilities | Walkable and Livable Communities Institute

Safe Routes to School: A national program to improve safety and encourage more children to walk, bike and roll to school. Focuses on improvements through engineering, education, enforcement, encouragement and evaluation. (See National Center for Safe Routes to School, www.saferoutesinfo.org.)

Sharrows: A "shared roadway marking"—usually paint—placed in the center of a travel lane to alert motorists and bicyclists alike to the shared use of the lane. They help position bicyclists away from the opening doors of cars parked on the street, encourage safety when vehicles pass bicyclists and reduce the incidence of wrong-way bicycling.

A sharrow in Seattle, WA.

Sidewalks: All sidewalks, trails, walkways and ramps should be on both sides of streets. Where sidewalk gaps exist or ramps are missing, they should be fixed on a priority basis, working out block-by-block from schools, medical facilities, town centers, main streets and other areas where people should be supported in walking and biking. Sidewalks in people-rich areas should be at least eight feet wide and separated from the curb by a "furniture zone" that can accommodate planter strips, tree wells, hydrants and benches.

Smart Growth: Growing in a way that expands economic opportunity, protects public health and the environment (See U.S. EPA, http://www.epa.gov/smartgrowth/.)

Street Trees: Street trees not only provide shade and a nice environment, but also help protect students walking and bicycling. When placed within four to six feet of the street, trees create a vertical wall that helps lower vehicle speeds and absorb vehicle emissions. They also provide a physical buffer between cars and children. On streets with a narrow space between the sidewalk and curb (also known as the "furniture zone"), trees can be planted in individual tree wells placed between parking stalls, which further reduces travel speeds. Depending on the species, they should be spaced 15 to 25 feet apart.

Traffic Calming: Using traffic engineering and other tools designed to control traffic speeds and encourage driving behavior appropriate to the environment. Examples include street trees, bulb outs, medians, curb extensions, signage, road diets and roundabouts. Traffic calming should encourage mobility for all modes.

Walking Audit: Also called a "walking workshop," this is a review of walking conditions along specified streets conducted with a diverse group of community members. Participants experience firsthand the conditions that either support or create barriers to walking and biking. (See more about walking audits: Walkable and Livable Communities Institute, www.walklive.org.)

Above: Street trees create a buffer between people and cars, and provide shade and beauty. Below: Walking audits, or "walking workshops," give participants an opportunity to see streets through a new lens and observe what works and what doesn't work for active modes of transportation.

Walkability and Access in Kalamazoo

The WALC Institute has been engaged by the Disability Network Southwest Michigan as part of the Network's inititaive being carried out in conjunction with the City of Kalamazoo to improve walkability and livability, and to strengthen the Kalamazoo community by promoting inclusiveness, health, and economic development for all residents. Collectively, the partners believe that helping Kalamazoo become a more walkable community will contribute to the City's implementation of its Blueprint for Action.

As part of this engagement, a WALC Institute team—led by co-founder Dan Burden and consultant Ian Thomas—participated in a walkability workshop and walking audit in Kalamazoo, MI on August 7 and 8, 2014.

The events were organized by the Disability Network, with funding from the Jim Gilmore, Jr. Foundation.

The various activities of the two-day workshop took place at the Disability Network office on E. Vine St., in the neighborhood around the Network's office, in the adjacent downtown business district, and at the downtown Radisson Hotel.

Events on August 7 included an afternoon "discovery" tour of downtown Kalamazoo and south to E. Vine St. and an evening dinner with various stakeholders

The workshop and walking audit on August 8 included:

- 9 a.m.: Educational presentation on walkability and key principles
- 10:30 a.m.: Walking audit of the neighborhood around the Disability Network
- 12:30 p.m.: Small-group planning based on findings of the walkability audit
- 2:30 p.m.: Project prioritization and wrap up work session
- 5:30 p.m.: Community presentation on "Creating a Walkable and Livable Kalamazoo"

About 40 people participated in the morning activities, including Disability Network staff, clients, and volunteers; community advocates for access, walkability, and transit; local business operators; city and state planning and transportation staff; and a Governor's representative. All participants—including several individuals with physical and cognitive disabilities—joined the walking audit.

One-way versus two-way traffic emerged as a key issue early in the events

A dinner was held on August 7 with various stakeholders, including a downtown business representative, design professionals, city staff, and a state government representative. Kalamazoo Mayor Bobby Hopewell also joined part of the dinner.

Much of the dinner conversation focused on W. Michigan Ave. and its counterpart, W. Kalamazoo Ave., three blocks to the north. The two streets form a one-way pair that dominates downtown traffic flow.

The streets each carry four lanes of one-way traffic (eastbound on Michigan and westbound on Kalamazoo) and include curbside parking on both sides for one mile through downtown. The two merge points of the streets form awkward and hazardous intersections.

Stakeholders present at the dinner indicated any studies or design plans for the corridors should consider the entire downtown traffic system to evaluate opportunities at least six blocks north and south of the one-way streets.

One-way traffic flow in downtown Kalamazoo emerged early in the events as a key issue.

Community Goals and Priorities

Community members identified their priorities at two points during the workshop. On Friday morning, workshop participants shared their hopes and dreams for long-term outcomes and built environment improvements in interview-style introductions. Many expressed the desire to see access improvements, a philosophy of inclusivity and universal design in city planning, and a focus on providing safe mobility for people who don't use cars. More specific objectives included a sidewalk inventory, complete streets implementation, safe connections between neighborhoods and downtown, and better wayfinding. Then, at the end of the small-group planning activity in the afternoon, each group identified its community priorities. Here is a summary.

Improve access and mobility

- Accessible on-street parking spots
- Properly installed auditory signals at crosswalks and visual cues for grade changes
- Improved wayfinding and signage

Improve pedestrian safety and comfort:

- No parking in front of buildings
- Bulb-outs to reduce crossing distances and better curb cuts
- Speed tables, mid-block raised crosswalks, and illuminated crosswalks
- Dedicated left turns to reduce pedestrian conflicts
- Enforce snow clearance ordinances

Reduce traffic speeds downtown

- Return Michigan and Kalamazoo to two-way streets
- Reduce traffic lanes, add angled parking, add bike lanes and two-way cycle tracks
- Include system study in MDOT plans (now is the time to act; need "champions")
- Add roundabouts to calm traffic while improving flow/access
- Add street trees, create boulevards with landscaped medians

Create destinations and active spaces

- Adopt-a-space program
- Enhance alleys with planters, art, and street chalk
- Benches and landscaping, parklets and program space
- Target different age groups (eg. "splashpads" for kids, playgrounds at restaurants)
- Street musicians, living statues, puppeteers, educational programs and food trucks
- Minimize surface parking

Improve transit service and experience

- More bus stops, heated bus shelters
- User-friendly bus schedules/maps, better signage at bus stops
- Year-round trolley "circulator"
- More bike racks

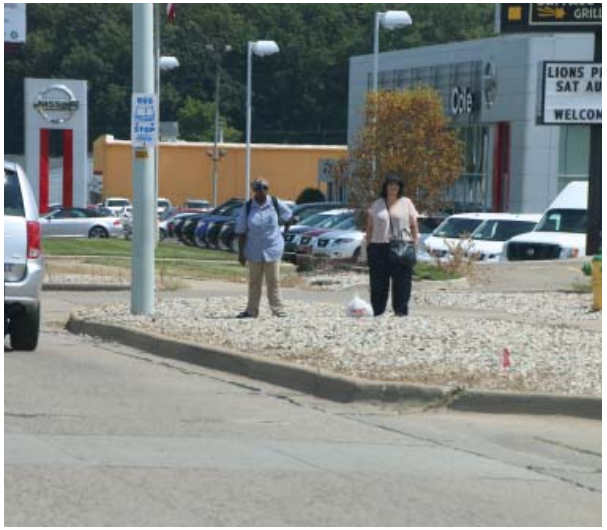
Existing Conditions

Disability Network Southwest Michigan wields a powerful advocacy voice

With more than 20 staff, a vision of a community that values disability as human diversity, and a mission to advocate for social change, Disability Network Southwest Michigan is a powerful and effective advocacy organization.

The majority of the 40 people who participated in the Disability Network's Walkability Workshop and Audit were advocates for equal access for people with disabilities. The organization is well-funded and, in addition to providing direct services, coordinates an "Access Team," a "Transportation Advocacy Group," and "Friends of Transit," which each meets once or twice per month. Staff and volunteers are well-informed and articulate on the issues of access, mobility, universal design, and the Americans with Disabilities Act (ADA). As outsiders, it was clear to WALC Institute staff that the Network is well-respected by senior decision makers at all levels of government.

The national movement in support of equal access for people with disabilities has a proud and successful history. Disability Network Southwest Michigan embodies all of the attributes of that movement and has high potential to succeed in the social change objectives it pursues, including creating a walkable and livable Kalamazoo.



There is strong, existing momentum for place-making in Kalamazoo

Several current initiatives in Kalamazoo can be broadly categorized as supporting place-making and walkable communities.

A public-private partnership has formed to study Portage Street—a residential, commercial, and industrial corridor connecting downtown Kalamazoo with Interstate 94 and the regional airport. A community charrette was coordinated recently by the City of Kalamazoo, Michigan Municipal League, LSL Planning (a private firm of planners, designers, and architects), and Kalamazoo County Landmark Bank. As a result of public input at the charrette, Portage Street is now being evaluated for "right-sizing" from four to three vehicle lanes, and the addition of bike lanes. This standard transformation (also known as a "road diet") is a relatively inexpensive way to promote bicycling, reduce traffic speeds while improving flow, and reduce crashes.

Second, "complete streets" policies and practices are becoming more widely accepted. The Michigan Department of Transportation has a state-wide Complete Streets policy which promotes "roadways that are planned, designed, or constructed to provide access to all users" and the Kalamazoo Area Transportation Study has provided a local policy requiring agencies to plan for sidewalks and bike lanes in all road construction projects.

Finally, as previously described, MDOT is evaluating Stadium Dr. and Michigan Ave. between Western Michigan University and the Kalamazoo River. According to MDOT, improvements could include traffic calming, pedestrian safety, bikeways, mobility, connectivity, parking, and streetscape, but not converting Michigan Ave. and Kalamazoo Ave. from one-way to two-way streets.

The density and intensity of ongoing public discussion around these three initiatives is a supportive context for the effort to make Kalamazoo a walkable and livable community.

The study area in and south of downtown Kalamazoo is primed for development

The study area for the Walkability Workshop and Audit consisted of downtown Kalamazoo and the neighborhoods to the south as far as E. Vine St. (where the Disability Network's office is located). This area—a total of about one square mile—includes the entire central business district, institutions such as the Kalamazoo Valley Community College, the Institute of Arts, and Bronson Hospital.

Like most college towns, development in the central city is accelerating, with heavy investment in student housing, high-end loft apartments, and expansion in the retail and restaurant sector. Kalamazoo is becoming a renowned "beer city" with several micro-breweries, brew-pubs, and wine lofts opening recently and a culture of "beer/wine crawls" creating a new pedestrian safety concern. Western Michigan University (whose main campus is on the south-west side of town) is opening its new medical school in a re-purposed building in the downtown area this fall, and a new community college campus is expected to open in one to two years.

All of this development creates an opportunity and a threat. Clearly, increasing residential and commercial density supports more a walkable, transit-rich central city and the financial interest in the area creates the opportunity for investment in public infrastructure as well as private property.

On the other hand, the built environment is going to change rapidly and, if appropriate urban-style zoning and transportation policies are not put in place, the development that occurs may not reflect the community's vision.

Above: Key parts of Kalamazoo are primed for walkable development. Below: Overly wide, one-way streets create significant barriers and limit the area's economic-development opportunities.

The one-way couplet downtown is unpopular with the community and local leaders

One of the most consistent themes emerging from the WALC Institute's two-day workshop was the dissatisfaction felt by community members, local elected officials, and city planners about the downtown area's one-way system.

From the intersection of W. Main St. and Douglas Ave. about a half-mile west of the city center to the extended intersection of E. Michigan Ave., E. Kalamazoo Ave, and King Highway to the east, two massive arterials funnel fast-moving vehicles through the downtown area and back again in a two-mile loop. Michigan Ave. flows eastbound while Kalamazoo Ave., three blocks to the north, flows westbound, and both streets are about 70 feet wide with four traffic lanes and on-street parking on both sides.

The excessive widths of these corridors create physical and psychological barriers to mobility for pedestrians and people with disabilities. The high traffic speeds, exacerbated by synchronized signals, negatively impact pedestrian comfort, safety, and sense of place. This reinforces a culture of automobile reliance and undermines support for efforts to improve walkability and expand public transit services. It is also likely that the amount of vehicle miles traveled is unnecessarily increased because of limited access and drivers' confusion about directions.

However, MDOT has jurisdiction over these streets and currently isn't reconsidering the one-way system. Significant public support and local leadership would be needed to change this.

Crosstown Parkway is an ill-conceived freeway

Directly in front of the Disability Network's office is the extremely skewed intersection of E. Crosstown Parkway and E. Vine St. (see image below.) These two major streets cross at an angle of just 40 degrees (instead of 90 degrees for a rectilinear intersection). As a result, there are unusual restrictions on traffic movements, and pedestrian crossing distances are long and difficult, which creates problems for pedestrians, including the Network's clients visiting the office.

Surveying a larger area of the city, Crosstown Parkway appears to be something of a maverick freeway. Starting as W. Crosstown Pkwy. near the intersection of Peeler and Bronson in south-west Kalamazoo, it winds its way for about 2 miles in a generally north-east direction, terminating at State Highway 96 east of town. It was apparently created to move traffic quickly across town, by commandeering other street corridors where it could and paralleling creeks or cutting diagonally across public open spaces elsewhere.

Along the way, it has created several problematic intersections because of the volume of traffic it carries and the unusual angles at which it intersects other streets.

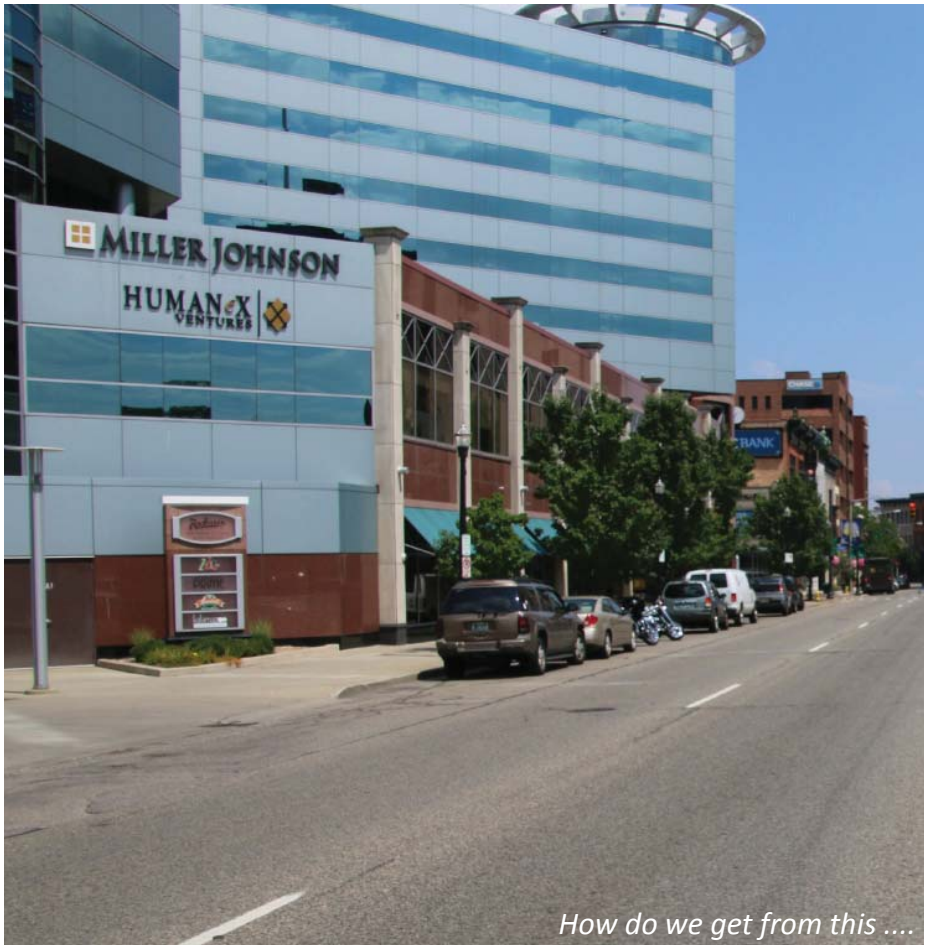
Kalamazoo's wayfinding systems are outdated

From the time WALC Institute staff arrived in Kalamazoo, difficulties with wayfinding for both motorists and pedestrians were experienced.

Directions to key locations in town are difficult to find upon leaving U.S. Highway 131 on the west side of Kalamazoo. Signs giving street names are absent at many important intersections in the residential neighborhoods to the west and south. Finally, in the downtown area, the absence of street signs persists, there are no walking maps on public display, and the one-way system creates further confusion.

Recommendations and Next Steps

A project is more likely to succeed if motivated individuals set a course to accomplish their goals immediately. Early successes provide the hand-holds needed to pull the group from one achievement to the next. Toward this end, the WALC Institute team has grouped its recommendations for improving walkability in Kalamazoo into three categories: short-term goals, mid-range projects, and long-term solutions. The community should be able to mobilize quickly to achieve the short-term goals and then turn its efforts to the longer-term goals.



How do we get from this ....

.... to this?

Present this report at a Disability Network-sponsored community meeting

To maximize the value of the WALC Institute's Walkability Workshop and Audit, we recommend the Disability Network staff review this report and then organize a meeting of all of the stakeholders who attended or expressed interest in the workshop. At this meeting, which should include City planners, engineers, and elected officials, we encourage you to work to reach consensus on a specific action plan for the next 100 days, based on the following recommendations but including any changes and additions that have strong community support.

Meet with community college and hospital leaders to discuss parking management

With Western Michigan University opening a new medical school, a new community college campus coming soon, a student housing boom, and a hospital expansion, there is a limited time window in which to influence the impact these developments will have on traffic and the transportation system.

Across the country, young people are driving less, buying their first car at an older age, and embracing transit and urban living, and so it is important to make sure that decision makers in these institutions are aware of these trends and include them in their transportation and parking plans. Limiting new parking spaces in the downtown area, creating off-site parking with shuttle service, and investing in the city's public transit system will save money and create the walkable, livable neighborhood everybody desires.

Ask Mayor Hopewell to organize a volunteer-led sidewalk inventory project

Mayor Bobby Hopewell joined the stakeholders' dinner on the Thursday evening, and demonstrated significant support for initiatives to create a livable Kalamazoo and improve access for people with disabilities. A frequent concern expressed during the workshop was the absence of sidewalks in many parts of downtown, and the poor condition of some of the sidewalks that do exist. The first step towards correcting any problem is to understand it, so we recommend the City conduct a comprehensive audit of all of the sidewalks within a designated area. This would be an excellent project to be championed by the mayor or another local political leader, possibly with help from the Disability Network volunteers, neighborhood associations, other community stakeholders, boy/girl scouts, etc.

Identify pedestrian crosswalk locations at which to install auditory signals

Another community priority to emerge from the workshop was the need to install auditory signals at some crosswalks, to assist people with limited vision. The Disability Network should appoint a task force to identify criteria for high-priority crosswalks (such as location on well-used walking routes, proximity to certain destinations, etc.) and then do the field research to determine which systems should be upgraded first.

Launch an "Adopt-A-Space" program to stimulate parklets and active public spaces

During the workshop, considerable support was expressed for improving utilization of small public spaces. This is consistent with a national place-making movement that seeks to quickly and inexpensively enhance forgotten or ignored parts of cities to make them more appealing and attractive. Simply adding benches, planters, trees, and/or public art can stimulate pedestrian activity in an area; going further and scheduling public performances such as storytelling, puppet shows, and music can draw crowds and increase the economic development potential of adjacent property. A public-private partnership is an effective way to launch this type of initiative; an "Adopt-A-Space" program invites private businesses and non-profit groups to create plans for specific locations in the downtown area. This program will stimulate parklets, play areas, public art, and performance venues.

Improve public access to Portage Creek

Portage Creek, which flows south to north past the the Disability Network office and through the center of the study area, is an attractive urban waterway. While one or two public access points have been developed, Portage Creek seems to be an underutilized neighborhood asset. Survey the property along the creek, and follow up with conversations with land owners to explore opening up small public-access spaces or even a linear park.

Create easy-to-use downtown maps for pedestrian orientation and access

Getting around downtown Kalamazoo on foot or by wheelchair is challenging. Compounding the lack of directional signs to public buildings or commercial centers, is the preponderance of streets carrying four lanes of high-speed traffic and long blocks between intersections with safe, pedestrian crossings. Because it is so difficult to walk or roll to a downtown destination, it is especially important to provide people with information that allows them to get there as efficiently as possible, without making wrong turns or crossings. Therefore, the Disability Network should work with Downtown Kalamazoo Inc. and the City to develop pedestrian maps of the downtown area, that include sidewalk locations, accessible alleys, safe pedestrian crossings, and those with auditory signals. These maps should be mounted on signal boxes or other locations on every corner of every major intersection, with "You are Here" stickers

Conduct a "system-level analysis" of traffic flows in downtown Kalamazoo

Downtown Kalamazoo is challenging to navigate as a pedestrian and as a motorist. Driving efficiently to a destination is confounded by an over-engineered system of multiple-lane one-way streets that restricts access and makes wayfinding difficult. In addition to the principal one-way loop made up of four lanes of eastbound traffic on W. Michigan Ave. and four lanes of westbound traffic on W. Kalamazoo Ave., Westnedge Ave. and Park St. are similarly over-built one-way streets moving traffic north and south, and there are numerous smaller one-way streets, such as Lovell, South, Church, Academy, and Exchange. The main reason one-way systems were implemented in the second half of the twentieth century was to move ever-larger volumes of automobiles to the exclusion of all other factors, in the belief (or hope) that this would improve access and convenience. Today, urban planning focuses on walkability and livability principles, under which a range of modes of transportation are available to users, who can choose the one that works most efficiently for each particular journey. For these reasons, the WALC Institute encourages a "system-level analysis" of automobile, transit, and pedestrian traffic flows throughout the entire downtown Kalamazoo area, to determine whether the various one-way systems achieve the community's goals.

Add curb extensions at the intersection of E. Crosstown Parkway and E. Vine St.

E. Crosstown Parkway and E. Vine St. intersect at an extremely skewed angle, making pedestrian crossing distances quite long. Since this intersection is located immediately in front of the offices of Disability Network Southwest Michigan, many of the pedestrians using these crosswalks have physical and/or cognitive disabilities and some are traveling by wheelchair. Because E. Vine St. has on-street parking on both sides, curb extensions could be added to shorten the crossing distance; it may also be possible to adjust the positions of the stop bars on both streets, so that the crosswalk is perpendicular to the street (instead of the currently skewed angle), thereby shortening the crossing distance.

Above: Examples are shown of some ways curb extensions can be applied to reduce crossing distances for pedestrians, improve the geometry of intersections and keep vehicle speeds low—and safe—through turns.

Redesign driveway access close to the Disability Network office

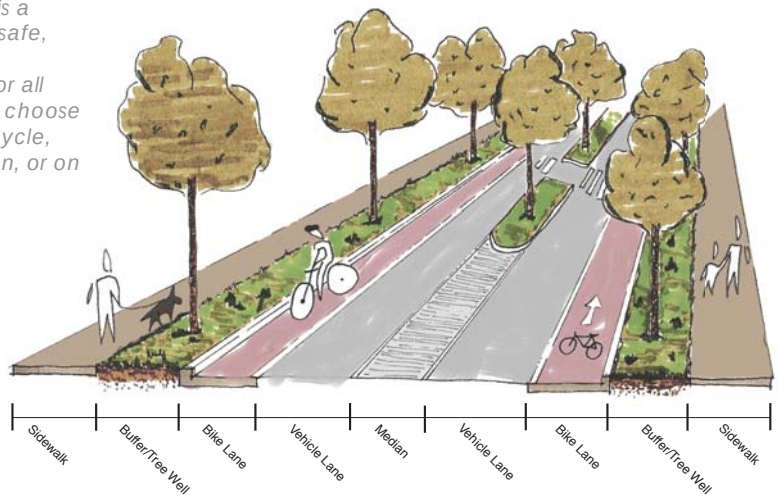
Another hazard for pedestrians in the area of the the Disability Network offices is a multiplicity of wide driveways, especially along the north-west side of E. Crosstown Parkway and the north side of E. Vine St. Someone walking or rolling along these sidewalks frequently finds herself in an exposed location where vehicles are turning in and out of parking lots. By working with owners and tenants of the neighboring buildings, the Disability Network may be able to develop a plan for closing some of the superfluous driveways and narrowing others to reduce the speed of entering and exiting traffic. Large planters could be used to accomplish these changes inexpensively, while creating a more attractive streetscape.

Above left: A grocery store driveway is narrow, which helps slow cars down and keeps crossing distances short for pedestrians. Top right: where sidewalks and driveways intersect, the design should favor the pedestrian.

Work with the County Road Commission to implement complete streets

In the past decade, more than 600 cities, counties, and MPOs throughout the U.S. have adopted and started to implement complete streets policies, because they provide safe access for all types of road users, improve congestion and safety, and are popular with the public. Recent Complete Streets initiatives in Michigan and Kalamazoo are encouraging. However, is common for concerns to arise about potential new costs associated with adding sidewalks and bike lanes to existing "incomplete streets." Thankfully, these are generally small costs when compared with the long-term benefits to communities. To address the concerns, though, we recommend the Disability Network work with KCRC to host a workshop with public input that would identify priority projects and draft a cost-contained complete streets implementation plan. The WALC Institute, the National Complete Streets Coalition and other organizations could provide consultation.

A Complete Street is a street designed for safe, comfortable and convenient travel for all users, whether they choose to travel by car, bicycle, public transportation, or on foot.



Trees: Tall trees of a species appropriate for the area are spaced 15 to 25 feet apart. The vertical wall helps calm traffic and encourages lower vehicle speeds.

Buffer: If the buffer includes trees, they should be set back from the curb at least four feet and the total buffer should be at least six feet.

Bike lane: To function well, bike lanes should be at least six feet wide.

Wide stripes: Mark bike lanes with thermoplastic stripes eight to twelve inches wide.

Median widths: Medians typically are six to eight feet wide, but can vary to allow for landscaping, maintenance and adequate "refuge" for pedestrians crossing.

Vehicle lanes: Lane width analysis indicates that narrower lanes are associated with lower crash frequencies. Ten foot travel lanes reinforce a 25-35 mph design speed.

"If a roadway is being reconstructed, rebuilding the roadway with 10-foot lanes and timing the traffic signals for 30 mph will control speeds and can actually result in a reduction in costs by using a narrower overall roadway structure."

– John LaPlante, PE, PTOE, Director of Traffic Engineering for T.Y. Lin International, former City Traffic Engineer with the City of Chicago; in a National Complete Streets Coalition fact sheet produced by Smart Growth America. See www.SmartGrowthAmerica.org

Implement pedestrian improvements at intersection of W. Michigan Ave. and Rose St.

The intersection of W. Michigan Ave. and Rose St., immediately in front of the Radisson Hotel, has several pedestrian friendly design features, including tight curb radii on all four corners, so vehicles have to slow down to about 10 mph to make right turns; well-designed access ramps from the sidewalks that are correctly aligned with the relevant crosswalk; signal timing that gives pedestrians enough time to cross; and attractive planters.

On the other hand, crossing distances are enormous, the diagonal suspension system for traffic signals is associated with lower driver compliance, and workshop participants reported a high number of pedestrian-involved crashes, especially on the east leg of the intersection.

To address these problems, add landscaped curb extensions to reduce crossing distances from 60 feet to 40 feet and improve pedestrian comfort; replace the diagonal traffic signal suspension system with a square system that makes the signals more visible to drivers; and replace the "permissive left turn" currently in effect for southbound traffic turning east onto E. Michigan Ave. with a "No left turn" phase (during which pedestrians can use the east crosswalk leg) followed by a "protected left turn" (during which pedestrians and northbound cars have a stop signal).

Construct roundabouts at "merge points" of the current one-way system

Two of the most awkward and dangerous intersections in downtown Kalamazoo are at the "merge points" of the current one-way system: the intersection of W. Main St. and Douglas Ave. to the west, and the extended intersection of E. Michigan Ave., E. Kalamazoo Ave, and King Highway to the east.

Both of these intersections create significant safety and access challenges for pedestrians and motorists because of the unusual alignments of major roads, which would be addressed by converting them to roundabouts.

These conversions, which ideally should be done in conjunction with a removal of the one-way system, would improve traffic flow, reduce crashes, reduce operating costs, and improve pedestrian access and safety. Well-marked crosswalks should be set back one car length from the entry point to the roundabout with pedestrian islands installed halfway across each leg.

Right: Modern roundabouts are a "proven safety counter-measure" as described by the Federal Highay Administration because they reduce the number and severity of crashes. Download the entire series of AARP/WALC Institute livability fact sheets for free, including a fact sheet on modern roundabouts, at www.aarp.org/livable.

Modern Roundabouts

A LIVABILITY FACT SHEET

Every day in the U.S. more than 20 people are killed at traffic intersections, and many more are seriously injured.[1] Roundabouts — circular intersections that move traffic counterclockwise around a central island — can help reduce these deaths and injuries. Roundabouts are calmer and safer than conventional intersections and have been deemed a "proven safety counter-measure" by the U.S. Department of Transportation.[2]

Modern roundabouts — often the size of a baseball field — differ from rotaries or traffic circles, which can be as big as the stadium itself. Roundabouts feature lower, safer vehicle speeds. They can be 80 feet across with single lanes carrying 25,000 vehicles a day or larger at 200 feet, with double lanes and 45,000 vehicles a day.[3]

Personal injuries and fatalities plummet as much as 90 percent in modern roundabouts when compared to conventional intersections.[4] Roundabouts cause drivers to slow down, ideally to less than 20 mph, which reduces the risks to both pedestrians and drivers.

Because roundabouts can handle 30 to 50 percent more traffic than conventional intersections, they reduce travel delays.[4] Since roundabouts can be designed to be aesthetically pleasing, they help create a sense of place.

By January 2014, roundabouts graced over 2,000 intersections in the U.S., with more planned.[5] Given their safety and placemaking benefits, roundabouts should be considered for many more of the three million intersections in the U.S.

1. U.S. Department of Transportation's Federal Highway Administration (FHWA) (n.d.), safety.fhwa.dot.gov. Modern Roundabouts: A Safer Choice. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10023/transcript/audio_no_speaker/
2. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. Proven Safety Countermeasures. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_005.htm
3. U.S. DOT FHWA (n.d.), fhwa.dot.gov. Roundabouts: An Informational Guide. http://www.fhwa.dot.gov/publications/research/safety/00067/000674.pdf
4. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. http://www.fhwa.dot.gov/resourcecenter/teams/safety/teamsafe_rndabout.pdf
5. Kittelson & Associates, Inc. (August 2000), roundabout.kittelson.com. Modern Roundabouts. Retrieved Feb. 3, 2014, http://roundabout.kittelson.com/Roundabouts/Search

Vehicle speeds on Grandview Drive in University Place, Wash., were once as high as 50 mph. After the installation of roundabouts, crashes dropped from one every nine months to none in 14 years.

AARP Walkable and Livable Communities Institute

Convert W. Michigan Ave. and W. Kalamazoo Ave. to two-way streets and "right-size" them

As has been discussed earlier, the one-way system consisting of W. Michigan Ave. and W. Kalamazoo Ave. is inconsistent with the goals identified during the walkability workshop to create a more walkable and livable Kalamazoo.

A previously described recommendation was for local and state planning and transportation professionals to work with community representatives to conduct a "system-level analysis" of traffic flows in downtown Kalamazoo. The study should extend at least six blocks north of W. Kalamazoo Ave. and the same distance south of W. Michigan Ave., to cover the entire downtown area. A properly conducted study may conclude that access, mobility, and consistency with the community's vision for downtown Kalamazoo will be enhanced by returning these two streets to two-way operation.

In addition, the streets likely could be "right-sized" by reducing the number of travel lanes from four to three (this is also known as a "road diet; see the livability fact sheet at www.aarp.org/livable for more information about road diets.) Instead of having two lanes in each direction, there would be a single 10-foot-wide center turn lane, a 10-foot through lane in each direction, a five-foot bike lane in each direction, and parking adjacent to the curb on both sides of the street as in the present configuration.

There are several benefits from this transformation: cyclists have a safe space to ride, vehicle traffic flows more smoothly because all through traffic is in the same lane and not getting stuck behind left-turning vehicles, and there are reduced crashes due to left-turns and unsafe lane changes.

The photo-vision that follows iilustrates possible results on Michigan Ave.

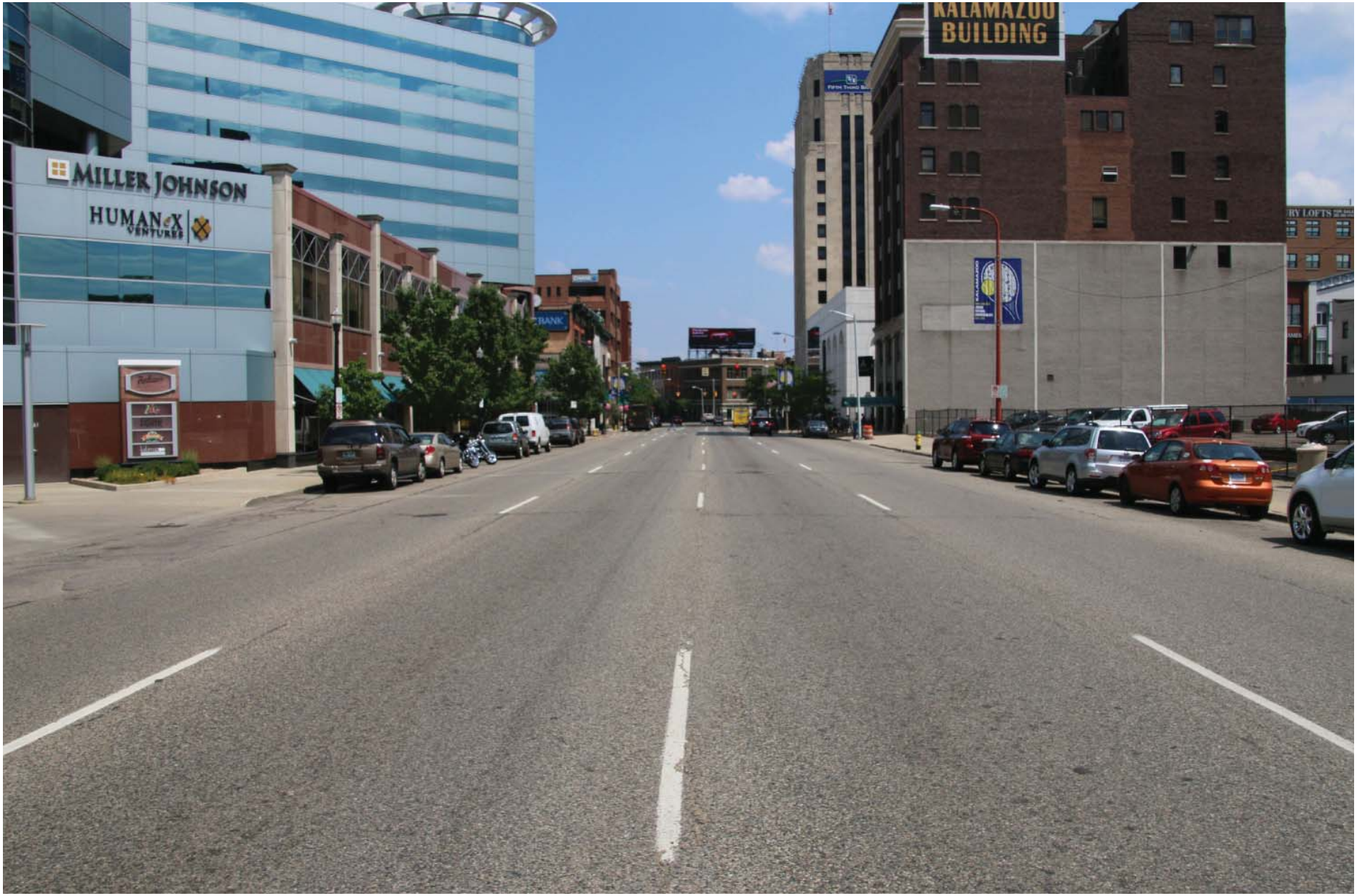

MILLER JOHNSON
HUMANEX VENTURES
KALAMAZOO BUILDING

Photo-Vision: A Healthier, More Prosperous Future

Appendix:

Livability Fact Sheets by AARP and the WALC Institute

Bicycling

Density

Economic Development

Form-Based Code

Modern Roundabouts

Parking

Revitalization without Displacement

Road Diets

Sidewalks

Street Trees

Traffic Calming

Livability Fact Sheets

The Complete Collection

Livable Communities are Great Places for All Ages

- Bicycling
- Density
- Economic Development
- Form-Based Code
- Modern Roundabouts
- Parking
- Revitalization Without Displacement
- Road Diets
- Sidewalks
- Street Trees
- Traffic Calming

a publication of

AARP Real Possibilities

Walkable and Livable Communities Institute

AARP LIVABLE COMMUNITIES

aarp.org/livable

The Livability Fact Sheets collected in this booklet were created in partnership by AARP Livable Communities and the Walkable and Livable Communities Institute. The two organizations have the shared goal of helping towns, cities and communities nationwide to become safer, healthier, more walkable and overall livable for people of all ages.

A package of 11 comprehensive, easy-to-read livability resources, the fact sheets can be used individually or as a collection by community leaders, policy makers, citizen activists and others to learn about and explain what makes a city, town or neighborhood a great place for people of all ages.

Each topic-specific fact sheet is a four-page document that can be read online — by visiting aarp.org/livability-factsheets — or printed and distributed. We encourage sharing, so please forward the URL and use the fact sheets for discussions and research. If you have comments or questions, contact us at livable@aarp.org and/or community@walklive.org.

The **AARP Livability Fact Sheets** series was published by
AARP Education & Outreach/Livable Communities in association with the **Walkable and Livable Communities Institute**
Project Advisor: Jeanne Anthony | Editor: Melissa Stanton | Writers: Dan Burden, Kelly Morphy, Robert Ping

The fact sheets can be downloaded and printed individually or as a collection by visiting **aarp.org/livability-factsheets**

AARP is a nonprofit, nonpartisan organization, with a membership of more than 37 million, that helps people turn their goals and dreams into real possibilities, strengthens communities and fights for the issues that matter most to families such as healthcare, employment security and retirement planning. We advocate for consumers in the marketplace by selecting products and services of high quality and value to carry the AARP name as well as help our members obtain discounts on a wide range of products, travel, and services.

The vision for the Walkable and Livable Communities Institute (WALC) is to create healthy, connected communities that support active living and that advance opportunities for all people through walkable streets, livable cities and better built environments. The Institute's mission is to inspire, teach, connect and support communities in their efforts to improve health and well-being through better built environments was formed for charitable, educational and scientific purposes to help communities address the negative effects of the built environment on health, safety, social welfare, economic vitality, environmental sustainability and overall quality of life.

AARP Livable Communities | website: aarp.org/livable | email: livable@aarp.org
AARP | 601 E Street NW, Washington, D.C., 20049
Find your AARP state office at aarp.org/states or call 800-OUR-AARP

Walkable and Livable Communities Institute | website: walklive.org | email: community@walklive.org
2023 E. Sims Way #121, Port Townsend, WA 98368 | 360-385-3421

Cover illustration by Sigal Suhler Moran, licensed from Getty Images

Bicycling

A LIVABILITY FACT SHEET

Half of all trips taken in the United States are three miles or less, yet most Americans drive — even to the closest destinations. Only 3 percent of commuting trips in the U.S. are by bicycle, compared to up to 60 percent in The Netherlands.

Still, it's not unreasonable to believe we can improve our numbers. The popularity of bicycling has been on the rise. The number of bike trips doubled between 1990 and 2009, and many communities and the federal government are embracing the bicycle as a transportation solution for a healthy and viable future.[1]

Surveys show that 60 percent of Americans would ride a bicycle if they felt safe doing so, and eight out of 10 agree that bicycling is a healthy, positive activity.

Although issues related to bicycling continue to be debated, experience shows that bicycle-friendly features increase safety for all road users, including motor vehicles.[2]

In 2010, New York City removed a traffic lane and painted a two-way bicycle path with a three-foot parking lane buffer alongside Brooklyn's Prospect Park. Weekday bicycling traffic tripled, speeding by all vehicles dropped from 74 to 20 percent, crashes for all road users dropped 16 percent and injuries went down 21 percent, all without a change in corridor travel time.[3] Throughout New York City, deaths and serious crashes are down 40 percent where there are bike lanes.[4]

Bicycling also provides economic benefits: Two-thirds of merchants surveyed on San Francisco's Valencia Street say that bike lanes have improved business. In North Carolina's Outer Banks, bicycle tourism has already generated $60 million in annual economic activity on its $6.7 million bicycle infrastructure investment. In 2009, people using bicycles spent $261 million on goods and services in Minnesota, supporting more than 5,000 jobs and generating $35 million in taxes.[5]

Building bike infrastructure creates an average of 11.4 jobs for every $1 million spent. Road-only projects create 7.8 jobs per $1 million.[6] The average American household spends more than $8,000 a year on its cars; the cost to maintain a bicycle is about $300 a year.[7]

1. U.S. Department of Transportation, Federal Highway Administration, Pedestrian and Bicycle Information Center (May 2010). *The National Bicycling and Walking Study: 15–Year Status Report*. http://katana.hsrc.unc.edu/cms/downloads/15-year_report.pdf
2. Marshall, W, Garrick, N. (March 2011), "Evidence on Why Bike-Friendly Cities Are Safer for All Road Users," *Environmental Practice 13 (1)*
3. Newmann, A., Steely-White, P. (February 2011), "Battle of the Bike Lanes." *Bicycle Times*. Issue 009; and New York City Department of Transportation. Retrieved February 25, 2014 from http://www.nyc.gov/html/dot/html/bicyclists/prospectparkwest.shtml

This path in New Smyrna Beach, Fla., is part of a Volusia County plan to link schools, parks and businesses through interconnected paths. Fifteen miles were completed by 2012 with overwhelming public support. (Image: bikeflorida.net.)

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ **"Bicyclists don't follow rules."**
While there are bicyclists who do break the law, a large Federal Highway Administration study found that motorists failed to yield the right of way in 43 percent of crashes; bicyclists were at fault 36 percent of the time.[8] Since the 1982 passage of Idaho's "stop as yield" law, which allows cyclists to treat stop signs as yield signs, there has been "no discernible increase in injuries or fatalities," according to the Idaho Department of Transportation.[9]

■ **"Bicyclists don't pay their fair share."**
All road users — cars, trucks, bicycles, pedestrians, buses, light rail — are subsidized to some extent by society at large. Funding for U.S. roadways comes partly from vehicle taxes, fuel taxes and tolls, which together account for up to 60 percent of direct costs. General taxes and fees pay the remaining 40 percent. The federal gas tax of 18.4 cents per gallon has not been raised since 1992. Cars, buses and trucks impose much higher maintenance and capital costs on roads than bicycles do, and they benefit from subsidies that are not directly paid by motorists.[10] In 2009, the Seattle Department of Transportation paid only 4 percent of its road expenses with the gas tax while non-motor vehicle funds paid for the rest.[11] Motor vehicle crash injuries cost society $99 billion in 2010 due to medical expenses and lost productivity.[12] Pedestrians and bicyclists bear a larger share of costs than they impose.[13]

■ **"Bicycling is only for middle-class white males in Spandex."**
Six in 10 young bicycle owners are women, eight out of 10 American women have a positive view of bicycling and two out of three believe their community would be a better place to live if biking were safer and more comfortable. Between 2001 and 2009, the fastest growth in bicycle use in the U.S., from 16 to 23 percent, occurred among self-identified Hispanics, African-Americans and Asian-Americans, 86 percent of whom have a positive view of bicyclists.[14]

■ **"Bicycling is too dangerous."**
Bicycling does tend to have higher fatality rates per mile than motorized travel, but a typical motorist drives five to 10 times more miles than a typical cyclist. Bicycling risk can be significantly reduced through improved infrastructure and a greater numbers of bicycles on the road.[15] Bicycling also imposes minimal risk to other road users and provides significant health benefits that can offset crash risks.[16] There were no bicycling fatalities in bicycle-friendly Portland, Ore., in 2013 even though bicycling accounts for at least six percent of all trips. By comparison, 21 people were killed inside motor vehicles that year.[17]

■ **"Bicyclists slow down cars and create congestion."**
Average traffic speeds in Manhattan's primary central business district south of 60th Street has increased nearly seven percent since the installation of bike lanes in 2008.[18] Bicycles take up less road space than motor vehicles and cyclists tend to avoid congested roads that don't have bike lanes.[19]

■ **"Bicycle lanes hurt business."**
After the installation of protected bike lanes on New York City's 8th and 9th avenues in the fall of 2007, retail sales increased 49 percent in those areas compared to 3 percent in the rest of Manhattan.[19]

4. Transportation Alternatives, "Bicycling in New York City: Know the Facts." Retrieved Feb. 24, 2014, http://transalt.org/issues/bike/bikefaq
5. Flusche, D. League of American Bicyclists, Advocacy Advance (2009, 2012), *Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure*. http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(small).pdf
6. Garrett-Peltier, H. Political Economy Research Institute, University of Massachusetts at Amherst (June 2011), *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*. http://www.peri.umass.edu/fileadmin/pdf/published_study/PERI_ABikes_June2011.pdf
7. Livable Streets Alliance, U.S. Bureau of Transportation Statistics, Alliance for Bicycling and Walking. Retrieved Feb. 24, 2014, http://www.livablestreets.info/facts-and-stats
8. Hunter, W. W., et al (1995), "Bicycle-motor vehicle crash types: the early 1990s," *Transportation Research Record,* No. 1502, pp. 65-74
9. Mionske, B. (2009) "Legally Speaking with Bob Mionske: Stop as yield." *Velo News*. http://bit.ly/1orJGmt
10. Litman, T. Victoria Transport Policy Institute (November 2004), "Whose Roads? Defining Bicyclists' and Pedestrians' Right to Use Public Roadways"
11. Seattle Department of Transportation *2009 Annual Report*. http://www.seattle.gov/transportation/docs/2009AnnualReport.pdf
12. Rocky Mountain Insurance Information Association, AAA, FHWA. Retrieved Feb. 26, 2014, http://www.rmiia.org/auto/traffic_safety/Cost_of_crashes.asp
13. Litman, T. Victoria Transport Policy Institute (November 2004), "Whose Roads? Defining Bicyclists' and Pedestrians' Right to Use Public Roadways"
14. League of American Bicyclists, Sierra Club (2013), *The New Majority: Pedaling Towards Equity*. http://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/equity_report.pdf

HOW TO GET IT RIGHT

Bicycle parking promotes riding. Racks can be placed on the street. One car parking space can hold 12 bikes.

This raised cycle track in Missoula, Mont., is an example of a grade-separated, protected bike lane.

To encourage bicycling and bicycle-friendly streets and communities, try the following:

■ Embrace a public process and build support

Develop an education and awareness campaign prior to implementation, and reach out broadly to community members, elected officials and municipal leaders. Government officials may need to see public support before acting. Toward that end, advocates can share this fact sheet, talk to neighbors, build community support and then meet with decision makers, the media, experts and others to discuss the benefits of bicycling. Agency staff can engage residents by hosting workshops to build acceptance and understanding.

■ Start with a pilot project

Do a simple, low-cost project, such as striping a bike lane in an area with high bicycling potential and an existing right of way. This can help residents become comfortable with bicycling and enable municipal staff to document what works and what doesn't. Promote the pilot as a road improvement project rather than only as a bicycle project.

■ Provide adequate bicycle parking

Bicycle racks encourage bicycling. Well-placed racks provide a secure place for parking bicycles while shopping, working or playing. Racks can be located inside buildings or bolted into sidewalks or even the street. A single parking space can hold up to 12 bicycles on staple racks (they look like an inverted "U" shape) mounted in a row.

■ Create routes and wayfaring signs

Develop a system of routes cyclists can follow to get around town safely. Install highly-visible wayfaring signs that indicate distances, destinations and street names and install signs at all important crossings.

■ Establish a bike share

More than 500 communities worldwide, including at least 50 in the U.S., have a short-term bicycle rental or "bike share" program.[20] (New York City and Washington, D.C., feature popular bike share networks.) People can join a share program for the day or a full year by paying a nominal fee. To participate, a rider checks out a bicycle from a computerized kiosk and then returns the bike at a share program rack near his or her destination.

15. John Pucher and Lewis Dijkstra, "Making Walking and Cycling Safer: Lessons from Europe," Transportation Quarterly, Vol. 54, No. 3, Summer 2000
16. Litman, T. Victoria Transport Policy Institute (November 2004), "Whose Roads? Defining Bicyclists' and Pedestrians' Right to Use Public Roadways"
17. City of Portland, Oregon. "Traffic Fatalities in Portland by Mode of Travel 1996-2013." Retrieved Feb. 24, 2014, http://www.portlandoregon.gov/police/article/473856
18. Flegenheimer, M. "In Bloomberg's City of Bike Lanes, Data Show, Cabs Gain a Little Speed," (Sept. 4, 2013), *The New York Times*
19. Litman, T. Victoria Transport Policy Institute (Nov. 2004), "Whose Roads? Defining Bicyclists' and Pedestrians' Right to Use Public Roadways"
20. Earth Policy Institute (May 2013), "Plan B Updates: Dozens of U.S. Cities Board the Bike-Sharing Bandwagon." Retrieved May 8, 2014, http://www.earth-policy.org/plan_b_updates/2013/update113

SUCCESS STORIES

■ Palo Alto, California: Bicycle Boulevards

Bicycle boulevards are low-volume, low-speed streets that have been optomized for bicycle travel. Palo Alto has an extensive network of paths, bike lanes and boulevards, including connections to schools throughout town. Data from the 2010 Census showed 7.1 percent of residents commuted to work by bicycle, an increase from 5.6 percent in 2000. The city continues to provide facilities, services and programs to promote travel by bicycle.

■ Indianapolis, Indiana: Cultural Trail

An eight-mile, $63 million walk-bike Cultural Trail was completed in May 2013, having been financed by both public and private dollars. The trail winds through the downtown of this automobile-oriented city (home of the Indy 500), connecting the city's center to a half-dozen emerging cultural districts, a 1.5 mile section of the historic Indianapolis Canal and to White River State Park, a former industrial wasteland now filled with museums, lawns and attractions. By April 2014 the trail had generated more than $864 million to the local economy.

■ Memphis, Tennessee: Broad Avenue

Bike lanes are part of the city's Broad Avenue Arts District initiative, which revitalized a struggling commercial and residential area. The project's popularity exploded when the focus was expanded to include bicycles. "The lanes slowed down traffic and people started noticing the businesses more," says Pat Brown, co-owner of T Clifton Art Gallery. "Our revenues have grown on average 30 percent per year. Yes, that's for an art-related business in a tough economy." The district has seen more than 15 new businesses and nearly 30 property renovations. Restaurants report a growth in business due to bicyclists.

WHY IT WORKS

Protected bike lanes can feel more comfortable and are safer, especially for beginners, seniors and children:

RESOURCES

1. **Whose Roads? Defining Bicyclists' and Pedestrians' Right to Use Public Roadways.** Litman, T. Victoria Transport Policy Institute (November 2004), http://www.vtpi.org/whoserd.pdf
2. **Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure.** Flusche, D. League of American Bicyclists, Advocacy Advance (2009, 2012), http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(small).pdf
3. **Urban Bikeway Design Guide.** National Association of City Transportation Officials (NACTO Sept. 2012), http://nacto.org/cities-for-cycling/design-guide/
4. **Pedestrian and Bicycle Information Center.** www.pedbikeinfo.org/
5. **Alliance for Biking & Walking.** Resource Library, http://www.bikewalkalliance.org/resources/resource-library/
6. **Safe Routes to School National Partnership**. http://www.saferoutespartnership.org/resourcecenter/National-Learning-Network/Library-of-Resources
7. **Association of Pedestrian and Bicycle Professionals**. http://www.apbp.org/?page=Library
8. **Fundamentals of Bicycle Boulevard Planning & Design**. Portland State University, Initiative for Bicycle and Pedestrian Innovation (2009)
9. **Bicycling and Walking in the United States: 2014 Benchmarking Report.** http://www.bikewalkalliance.org/resources/benchmarking
10. **Protected Bike Lanes Mean Business** http://www.bikewalkalliance.org/resources/reports/protected-bike-lanes-mean-business
11. **National Complete Streets Coalition**. http://www.smartgrowthamerica.org/complete-streets

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Density

A LIVABILITY FACT SHEET

Compact, mixed-use communities are thriving. As the housing market imploded in the late 2000s, the neighborhoods that held their property values the best were those with a mix of land uses — housing, retail, restaurants and office space — all located within a walkable core.[1,2]

Many baby boomers and young adults are settling in walkable neighborhoods that offer a mix of housing and transportation options and close proximity to jobs, schools, shopping, entertainment and parks. A majority of Americans prefer such communities.[3]

The aging of the U.S. population and ongoing decline in the share of households with children will continue to boost the demand for smaller homes in more compact neighborhoods. From 1970 to 2012 the percentage of households consisting of married couples with kids plunged from 40 to 20 percent, while the share of homes with a single person living alone jumped from 17 to 27 percent.[4]

While most Americans say they want to live in a single-family home, 71 percent of Californians want to live in more compact, transit-oriented places. Nationally, 70 percent of people born between 1979 and 1996 prefer walkable, urban neighborhoods and don't believe they need to move to a suburb once they have children.[5] Researchers with the Federal Reserve Bank of New York even found that a doubling of an area's density increases worker productivity by up to 4 percent.[6]

Density and mixed-use development comes in a variety of forms — from small-lot detached homes to condo buildings and townhouses in a suburban town center to apartments located atop downtown retail shops. Regulation and site design practices such as form-based code[7] can transform urban, suburban and rural areas into livable, connected and thriving places that offer a range of transportation choices.[8]

1. Brookings Institution. (May 2012) *Walk this Way: The Economic Promise of Walkable Places in Metropolitan Washington, D.C.* http://www.brookings.edu/research/papers/2012/05/25-walkable-places-leinberger
2. CEOs for Cities. (August 2009) *Walking the Walk.* http://www.ceosforcities.org/research/walking-the-walk/
3. The National Association of Realtors. (2013) Community Preference Survey. http://www.realtor.org/articles/nar-2013-community-preference-survey
4. U.S. Census Bureau. American Families and Living Arrangements. http://www.census.gov/prod/2013pubs/p20-570.pdf
5. Nelson, A. Urban Land Institute. (2011) *The New California Dream: How Demographics and Economic Trends May Shape the Housing Market: A Land Use Scenario for 2020 and 2035.* http://www.uli.org/wp-content/uploads/2012/06/ULI-Voices-Nelson-The-New-California-Dream.ashx_1.pdf
6. Abel, J. et al., Federal Reserve Bank of New York Staff Reports, no. 440. (March 2010; revised September 2011) *Productivity and the Density of Human Capital.* http://www.newyorkfed.org/research/staff_reports/sr440.pdf

High Point, a former World War II-era public housing project in Seattle, Wash., is now an award-winning, sustainable, highly diverse neighborhood featuring a community center, library, medical clinic and dental clinic.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Density just means big, ugly apartment buildings."

Density is generally defined as the amount of residential development permitted on a given parcel of land. In previous decades, density often meant large complexes that concentrated low-income housing or long rows of nearly identical suburban homes. Higher density projects can instead be townhouses, apartments, accessory units and live-work spaces that accommodate a broader range of lifestyles. These residences are in addition to, not instead of, single-family detached homes with front porches and small yards. Smart density also includes areas for parks and open space.[9]

■ "Density reduces property values."

Well-designed density actually increases property values — at two-to-four times the rate seen with conventional sprawl. Good locations for increased density are typically along principle roads or in clusters such as mixed-use villages.[10]

■ "Density breeds crime."

With good planning and design, high-density development helps populate streets and sidewalks, putting more "eyes on the street," which is a known crime deterrant.[11] Over the past 30 years, the city of Vancouver, British Columbia, has watched its downtown peninsula become one of the most densely developed urban areas in North America, yet the city has seen crime rates drop as density has increased.[12]

■ "Density brings traffic and parking problems."

By combining a mix of land uses (housing, businesses, schools, etc.) density brings daily destinations within an easy walk, bicycle ride or transit trip. People spend less time driving and looking for parking. Traffic counts fall with well-designed higher density development and make transit a viable option.[12]

■ "Density is worse for the environment."

Conventional subdivisions with single-family homes on large lots have a more harmful impact on natural systems than high-density areas. When land is developed compactly it leaves more green space for filtering stormwater runoff, providing wildlife habitats, absorbing carbon dioxide and reducing greenhouse gases. Since people in transit-supported dense areas walk more and drive less, density causes less — not more — air and water pollution.[12]

■ "Density places a burden on schools and public services."

People who choose high-density housing typically place less of a demand on schools and other infrastructure than those moving to conventional subdivisions with single-family homes on large lots. Compact urban areas require less expansive infrastructure, making them less costly than sprawl.[12]

■ "Rural towns can't benefit from density."

Many people are attracted to vibrant small towns that have higher population densities. In a 2013 survey in which 100,000 people nominated and voted for their favorite small towns, all but three of the 924 towns considered had a population density of more than 500 people per square mile.[13] Increasing a small town's density so it can feature the benefits of a more urbanized lifestyle can be key to the community's future success. If increasing density in the town core becomes a priority of the community's growth plan, it can decrease some of the negative effects of the kind of population loss common in many rural regions.[14]

7. Form-Based Code Institute. What are Form-Based Codes? Retrieved March 7, 2014, http://www.formbasedcodes.org/what-are-form-based-codes
8. Larco, N. , Schlossberg, M. Oregon Transportation Research and Education Consortium. (January 2014) *Overlooked Density: Re-Thinking Transportation Options in Suburbia*. From http://www.otrec.us/project/152
9. Local Government Commission, EPA. (September 2003) *Creating Great Neighborhoods: Density in Your Community*. http://www.epa.gov/smartgrowth/pdf/density.pdf
10. National Multi Housing Council, American Institute of Architects, Urban Land Institute. (2005) *Higher Density Development Myth and Fact*. http://www.nmhc.org/files/ContentFiles/Brochures/Myth%20and%20Fact%20FINAL.pdf
11. StreetsWiki. Eyes on the Street. Website. Retrieved March 7, 2014, http://streetswiki.wikispaces.com/Eyes+On+The+Street
12. National Multi Housing Council, American Institute of Architects, Urban Land Institute. (2005) *Higher Density Development Myth and Fact*. http://www.nmhc.org/files/ContentFiles/Brochures/Myth%20and%20Fact%20FINAL.pdf
13. Budget Travel website. "America's Coolest Small Towns 2013." http://www.budgettravel.com/contest/americas-coolest-small-towns-2013,14/
14. Federal Reserve Bank of St. Louis. (2013) Increasing Density: A Small-Town Approach to New Urbanism. http://www.stlouisfed.org/publications/br/articles/?id=2451

HOW TO GET IT RIGHT

Nine residences sit above storefronts in Davis, Calif., which has a population of about 6,600 people per square mile.

Street life is adundant in Davis. People walk and bicycle for fun, exercise, to run errands and get around.

Since density can be pursued in ways that don't contribute to livability, it's important to get density efforts right. Try the following:

■ Embrace a public process and build support

Develop an education and awareness campaign prior to implementation and reach out broadly to community members, elected officials and municipal leaders. Illustrate different alternatives for what high-density, mixed-use neighborhoods might look like.

■ Inspire the public with model projects

Because many Americans have strong feelings about high-density, mixed-use development, be prepared to highlight local or regional success stories.

■ Compatibility matters

Neighbors may worry that a new development will clash with the look and feel of the community, so engage residents in meetings where they can have input into the design. Ensure that any new development complements a neighborhood's existing homes and streetscape.

■ Get the design right

In many new suburban communities, developers have been permitted to build tract-style homes, each with identical two-car garages, large driveways and small yards. Sometimes the development code calls for overly wide streets as well, which undercuts the benefits of mixed-use density by allowing cars to predominate over pedestrians and bicyclists. A way to achieve moderate density is to build smaller single-family homes on small lots with rear-access garages or street parking. This can also be done by creating accessory dwelling units, such as a 500- to 800-square-foot "in-law" apartment.

■ Review zoning and development guidelines

Make sure developers receive clear guidance about building design and placement. Consider ways to achieve transitions from higher to lower density areas, such as by creating special district densities.

■ Utilize form-based code

Form-based codes offer a powerful alternative to conventional zoning since it uses the physical form rather than the separation of uses as its organizing principle. Such codes consider the relationships between buildings and the street, pedestrians and vehicles, public and private spaces and the size and types of streets and blocks.[15] The code also establishes rules for parking locations and limits, building frontages and entrance location(s), elevations, streetscapes, window transparency and block patterns (i.e., no oversized "super blocks"). Since form-based code can be customized, the code in one area might be about preserving and enhancing the character of the neighborhood while the goal elsewhere is to foster dramatic change and improvements. Often, a community's form-based code does both.[16]

15. Form-Based Codes Institute. Website. Retrieved March 17, 2014, http://www.formbasedcodes.org/what-are-form-based-codes
16. Chicago Metropolitan Agency for Planning. (2013) *Form-Based Codes: A Step-by-Step Guide for Communities*. http://formbasedcodes.org/files/CMAP_FBCI_GuideforCommunities.pdf

SUCCESS STORIES

Davis, California: Old North Davis

One of the most walkable places in America, the Old North Davis neighborhood evokes a classic small town feeling even though the community has an overall density of 10.7 units per acre. The neighborhood features a wide variety of housing types: Some homes take up an entire lot while others have a large yard or two small houses sharing the lot. Walking is popular, especially to the neighborhood's five-acre park, which twice a week hosts the nation's largest farmers' market. (The venue attracts 600,000 visits a year.) The city provides a bus service and uses angled parking for cars. In addition, there's enough bicycle parking to accommodate hundreds of cyclists. (See the pair of Davis photos on page 3.)

Portland, Oregon: Fairview Village

Fairview Village is a cohesive network of neighborhoods built around a community core that has shopping, civic buildings and public parks that are all scaled to people rather than cars. Village designers wanted to create a community that has the warmth and security of a small town while offering the vitality and convenience of an urban setting. Fairview has become a popular place to live and work, with a range of housing types and density, parks and open space, a library, a school, civic buildings and a small downtown.

Langley, British Columbia: New Villages

This Canadian city expects to double its population in 30 years to about 200,000. To be ready, Langley plans to create eight distinct villages, separated by large stretches of open space and agricultural land. Plans call for most neighborhoods to be developed densely enough to leave nearly 80 percent of the land green, providing residents with direct links to trails and fresh food from local farms.

WHY IT WORKS

Before and After

Communities can be transformed by integrating land use and transportation planning. Streets become human scale, new investments are made and the building density is diversified, as illustrated by this photo-vision for rural Hot Springs, Ark.

RESOURCES

1. **Creating Great Neighborhoods: Density in Your Community**. Local Government Commission, EPA. (September 2003) http://www.epa.gov/smartgrowth/pdf/density.pdf
2. **Form-Based Codes: A Step-by-Step Guide for Communities.** (August 2013) Chicago Metropolitan Agency for Planning. http://www.formbasedcodes.org/files/CMAP_FBCI_GuideforCommunities.pdf
3. **Reshaping Metropolitan America: Trends and Opportunities to 2030.** Nelson, A.C. (2012) Washington, DC: Island Press. Presentation. http://utah-apa.org/uploads/files/135_Nelson_-_Utah_APA_10-1-10.pdf
4. **The New Real Estate Mantra: Location Near Public Transportation.** Center for Neighborhood Technology, National Association of Realtors, APTA. (March 2013) http://www.apta.com/resources/statistics/Documents/NewRealEstateMantra.pdf
5. **Overlooked Density: Re-Thinking Transportation Options in Suburbia.** Larco, N., Schlossberg, M. Oregon Transportation Research and Education Consortium. (2014) http://www.otrec.us/project/152

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Economic Development

A LIVABILITY FACT SHEET

For many years, public transit, bicycle lanes, trails and sidewalks have suffered from a lack of investment. The consequences are congestion, inactivity and obesity, as well as more air pollution and traffic crashes and a loss of economic vitality.

If current trends continue, total U.S. costs resulting from obesity are expected to be as high as $957 billion by 2030.[1] The price of poor air quality due to transportation is predicted to be between $50 billion and $80 billion a year.[2] Expenses from traffic crashes in urban areas are expected to exceed $299 billion annually,[3] with congestion costs adding $121 billion or more to the bill each year.[4]

A more balanced transportation system is needed or these costs will continue to climb and undermine the nation's economic health and quality of life.[5] One study estimates that if the U.S. would grow in a more compact way between 2000 and 2025, the country could save $110 billion in local road costs.[6]

A more balanced transportation system saves and earns money. For instance, bicycle infrastructure creates an average of 11.4 jobs for every $1 million spent while road-only projects create 7.8 jobs per $1 million.[7] After slowing traffic and improving bicycling on Valencia Street in San Francisco's Mission District, nearby businesses saw sales increase by 60 percent, which merchants attributed to increased pedestrian and bicycle activity.[8]

Houses with above-average levels of walkability command a premium of about $4,000 to $34,000 more than homes with average levels of walkability.[9] A 1999 study by the Urban Land Institute of four new walkable communities determined that home buyers were willing to pay $20,000 more for the houses than they would for similar homes in less walkable areas.

A nationwide survey by Smart Growth America of 17 development studies concluded that dense, mixed-use development costs 38 percent less than conventional suburban development on average, generates 10 times more tax revenue per acre and saves municipalities an average of 10 percent on public services such as police, ambulances and firefighting.[10]

1. American Heart Association. *Statistical Fact Sheet 2013 Update.* https://www.heart.org/idc/groups/heart-public/@wcm/@sop/@smd/documents/downloadable/ucm_319588.pdf
2. Federal Highway Administration. (2000) Addendum to the 1997 Federal Highway Cost Allocation Study Final Report (adjusted to 2008 dollars), www.fhwa.dot.gov/policy/hcas/addendum.htm

This block in Kingston, Wash., is located between a strip mall and the street. Prior to it being built, there was just a large surface parking lot. Now there's retail on an active street front and still adequate parking.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Investing in downtown is expensive, the suburbs are cheaper to develop."

Revenue-starved cities can garner far more taxes per acre from downtown multistory buildings than from strip malls and housing subdivisions. And in the next 20 years, the needs and preferences of aging baby boomers, new households and one-person households will drive real estate market trends. Downtown locations are likely to attract many of these people.[11] Asheville, N.C., has a big box retail store less than three miles east of its downtown. The tax value of the store is $20 million, but it sits on 34 acres of land, yielding about $6,500 an acre in property taxes. A remodeled department store in downtown Asheville generates $634,000 in tax revenue per acre.[12]

■ "Big box retailers bring big revenues to our town."

Big box retail encourages sprawling land uses, automobile dependence and the paving of large tracts of land. The stores contribute to the decline of urban and neighborhood centers because they pull retail activity out of central business districts and into the urban fringe. As local businesses close, residents increasingly use automobiles and travel farther to shop. Several studies have found that for every job created at a big box store one to two existing jobs in the community are destroyed.[13] A University of Massachusetts study found that income spent on a locally owned business had four to five times the local economic impact of a big box store does. Further, when a big box store closes, the community is left with a huge, unappealing building with limited reuse options.

■ "Narrow roads hurt business."

By reducing traffic speeds and accommodating people who are walking and bicycling, narrower roads are one of the best ways to increase retail revenues. This technique, called a "road diet," can even create more on-street parking spaces. The slower speeds provide drivers with better sight lines and make streets, entrances and exits easier to negotiate.[14]

■ "We need more parking lots, not less."

In Portland, Ore., property values and customer volume in parking-restricted areas near transit stations are higher than in other areas, and the properties sell and rent quickly even without dedicated parking spaces. An off-street parking space costs between $3,000 and $27,000 to build and about $500 a year to maintain and manage. On-street parking is more efficient and can bring in as much as $300,000 per space in annual revenues.[15]

■ "Cars bring more business than walking or bicycling."

Walkers and bicyclists tend to spend more money at local businesses than drivers do.[16] Bicycle- and pedestrian-friendly streets boast slower speeds that allow drivers to more easily see business storefronts. The North Carolina Department of Transportation found that although bicycle facilities in the Outer Banks cost $6.7 million to build, they bring an annual economic gain of $60 million and 1,400 jobs created or supported. After the installation of protected bicycle lanes on New York City's 8th and 9th avenues in the fall of 2007, retail sales increased up to 49 percent compared to 3 percent in the rest of Manhattan.[17]

3. AAA. (2008, updated 2011) Crashes vs. Congestion Report - What's the Cost to Society? Cambridge Systematics, Inc. http://newsroom.aaa.com/wp-content/uploads/2011/11/2011_AAA_CrashvCongUpd.pdf
4. Federal Highway Administration, Texas Transportation Institute. (2012) *Urban Mobility Report.* http://www.fhwa.dot.gov/congestion/
5. American Public Health Association. (March 2010) *Backgrounder: The Hidden Health Costs of Transportation.* http://www.apha.org/NR/rdonlyres/B96B32A2-FA00-4D79-99AB-F0446C63B254/0/TheHiddenHealthCostsofTransportationBackgrounder.pdf
6. Burchell, R et al. TCRP Report 74. Transportation Research Board /National Research Council. (2002) *The Costs of Sprawl– 2000.* Transit Cooperative Research Program. Washington, D.C. National Academy Press.
7. Garrett-Peltier, H. Political Economy Research Institute, University of Massachusetts at Amherst. (June 2011). *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts.* http://www.peri.umass.edu/fileadmin/pdf/published_study/PERI_ABikes_June2011.pdf
8. National Complete Streets Coalition. (2012) *It's a Safe Decision: Complete Streets in California.* http://www.completestreets.org/webdocs/resources/cs-in-california.pdf
9. Cortright, J. CEO's for Cities. (2009) http://www.ceosforcities.org/pagefiles/WalkingtheWalk_Summary.pdf
10. Smart Growth America. (May 2013) *Building Better Budgets: A National Examination of the Fiscal Benefits of Smart Growth Development.* http://www smartgrowthamerica.org/documents/building-better-budgets.pdf
11. EPA. (February 2014) *Smart Growth and Economic Success: Investing in Infill Development.* http://www.epa.gov/smartgrowth/pdf/economicsuccess/Developer-Infill-Paper-508b.pdf

HOW TO GET IT RIGHT

Investments in mixed-use development, such as this downtown square in Arcata, Calif., can pay back 10 times more than a big box or strip center development.

Walkability tends to keep money local, attract shoppers, lower health costs and produce jobs, such as for this new sidewalk in Houston, Texas.

Because economic development can make or break a community, it's important to get it right. Try the following:

■ Embrace placemaking

Strong networks of streets and destinations foster social networks, interaction and strong economies. But great places can only exist when people choose to participate in creating them. That's why architects, designers, planners and engineers need to move beyond shaping cities through the lens of their professional disciplines and instead partner with residents, advocates and people who work in transportation, economic development, parks and health agencies. Engaging the people who will be living in or using the end result provides a larger vision for the space and community.

■ Small projects, big results

Consider doing a simple, low-cost project first, such as striping a bike lane. This will give people a chance to get comfortable with the concept and allow municipal staff to document the outcome. Sidewalk cafes, striped crosswalks and community gardens are improvements that can be done quickly and foster economic growth.

■ Focus on downtown

From villages to cities, downtowns have traditionally been the heart of a community, a place where people work, shop, socialize, volunteer and often live. In recent decades downtowns in America have suffered from the proliferation of enclosed malls, strip malls, big box retail outlets and office parks at the urban edge. Dedicate efforts on revitalizing the downtown core with walkable, mixed-use development and destinations.

■ Utilize form-based code

Form-based code offers a powerful alternative to conventional use-based zoning by addressing the relationship between building facades and the public space the shape and size of buildings in relation to one another and the size and types of streets and blocks. The codes are adopted into city or county law and are drafted to implement a community plan.

12. Badger, E. (March 2012) "The Simple Math That Can Save Cities From Bankruptcy." *The Atlantic Cities*. Retrieved March 8, 2014: http://www.theatlanticcities.com/jobs-and-economy/2012/03/simple-math-can-save-cities-bankruptcy/1629/
13. Curran, D. (January 2002) The POLIS Project, Smart Growth BC. *Challenging the Sprawl of Big Box Retail: The Smart Growth Approach to "Zone It and They Will Come" Development*
14. Tan, C.H. (September/October 2011) "Going on a Road Diet." Public Roads. Federal Highway Administration, FHWA-HRT-11-006. Vol. 75, No. 2. http://www.fhwa.dot.gov/publications/publicroads/11septoct/05.cfm
15. Litman, T. Victoria Transport Policy Institute. (August 2013) Transportation Cost and Benefit Analysis II-Parking Costs. http://www.vtpi.org and Shoup, D. *Instead of Free Parking.* (1999) http://shoup.bol.ucla.edu/InsteadOfFreeParking.pdf
16. Krag, T. Aalborg University, Denmark. (2002) *Commerce and Bicycles*
17. NYC Department of Transportation. (2012) *Measuring the Street: New Metrics for 21st Century Streets.* http://www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf
18. Jaffe, E. (2011) "The Economics of Urban Trees." The Atlantic Cities. http://www.theatlanticcities.com/housing/2011/09/where-trees-rule-real-estate/223/

SUCCESS STORIES

Portland, Oregon: Economic Dividend

By enacting a growth boundary, increasing density, introducing mixed land uses and investing in transit, walking and biking, Portlanders are saving time and money on transportation. (More than $2.6 billion has been funneled back into the local economy.) Portland area residents travel about 20 percent fewer miles every day, or 8 million less miles per day, compared to other large metropolitan regions. (Vehicle miles traveled per person per day peaked in 1996.) A commitment to smart growth policies and the prevalence of walkability has attracted people and business to the region. In one decade the number of college educated 25 to 34 year-olds increased by 50 percent, which is five times faster than in the nation as a whole. Even design elements such as street trees can raise property values. Trees on the street in front of Portland homes add more than $7,000 to selling prices.[18]

West Palm Beach, Florida: Clematis Street

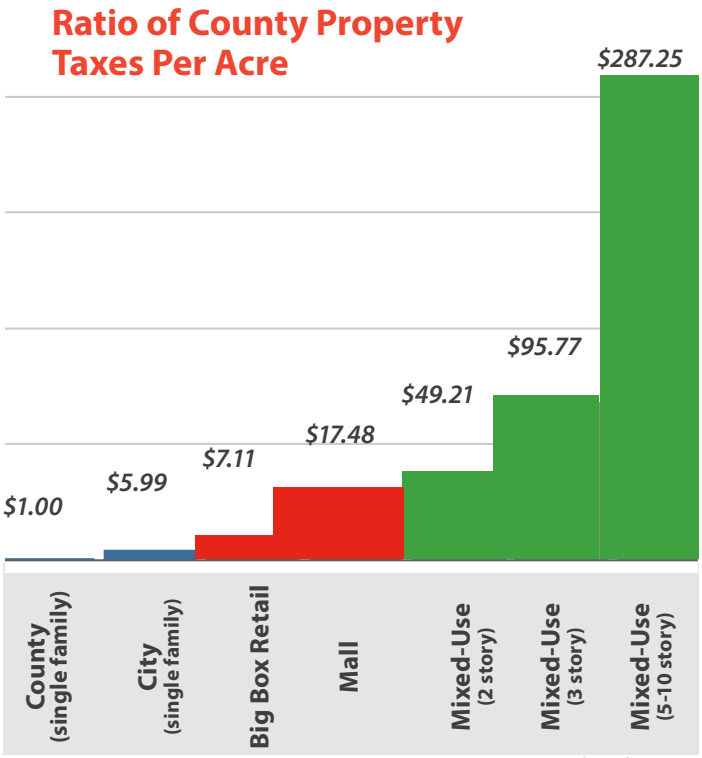
A once-lively Main Street anchored by a plaza, library and waterfront on one end and a historic train station on the other, Clematis Street was only 30 percent occupied in 1993. After a $10 million traffic-calming project rebuilt a fountain, restored key buildings and provided for event spaces, property values on the street doubled, $350 million in private investment came to the area and more than 80 percent of the building space became occupied. As traffic slowed, social links between neighbors increased, trash along the streets disappeared, and the area evolved from abandoned to alive. The average home sale price increased from $65,000 to $106,000.

Lancaster, California: Lancaster Boulevard

The redesign of its main boulevard helped transform downtown Lancaster into a thriving residential and commercial district by adopting a form-based code, streetscaping, new public facilities, affordable homes and local businesses. The project won the EPA's top smart growth award and has generated almost $300 million in economic output and nearly 2,000 jobs.

WHY IT WORKS

As this chart comparing data from 30 cities across 10 states shows, for every dollar in property taxes raised by a county for a single family home, $5.99 was raised for a city home within the county and up to $287.25 was raised for valuable five- to 10-story mixed-use properties.



Source: urban-three.com

RESOURCES

1. **Smart Growth and Economic Success: The Business Case.** EPA. (2013) http://www.epa.gov/smartgrowth/pdf/business_case.pdf
2. **Smart Growth and Economic Success: Investing in Infill Development.** EPA. (February 2014) http://www.epa.gov/smartgrowth/pdf/economicsuccess/Developer-Infill-Paper-508b.pdf
3. **Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure.** Flusche, D. League of American Bicyclists, Advocacy Advance. (2009-2012) http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(small).pdf
4. **"National Award for Smart Growth."** Lancaster, California. EPA. Video. https://www.youtube.com/watch?feature=player_embedded&v=pojylzK2uSM
5. **Bikenomics: How Bicycling Can Save the Economy.** Blue, E. (2013)
6. **Choosing Our Community's Future: A Citizens' Guide to Getting the Most Out of New Development**. Goldberg, D. Smart Growth America. http://www.smartgrowthamerica.org/documents/choosing-our-communitys-future.pdf

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Form-Based Code

A LIVABILITY FACT SHEET

Smart zoning and land use codes are the foundation upon which great communities are built.

The use of zoning regulations began in the early 20th century in response to urban overcrowding and the intrusion of heavy industry into residential and retail areas. Communities chose to address the problem by separating incompatible uses and limiting residential density.[1] Those efforts shaped the form of the built environment in unintended and occasionally unwanted ways.

For instance, because traditional zoning rules often promote low-density development and limited "one-size-fits-all" housing choices, the policies encourage excessive land consumption and automobile dependency.[2] Such zoning can stand in the way of communities seeking to create vibrant, walkable neighborhoods that give residents the option of walking to a store, park or work. Some zoning ordinances can even interfere with a person working from home or operating a home-based business.[3]

By using the physical form rather than the separation of uses as an organizing principle, form-based code offers a powerful alternative to conventional zoning. With form-based code what matters are the relationships between buildings and the street, pedestrians and vehicles, public and private spaces and the size and types of roads and blocks.[4] Instead of dictating or limiting activities, the code focuses on such elements as parking locations and limits, building frontages and entrances, window standards, streetscaping and building elevations.

Form-based code can be customized to fit a community's vision, be it to preserve and enhance a neighborhood's character or dramatically change and improve it. Form-based codes can do both.[5]

1. Michigan Association of Planning . (January 2007) "Form-Based Codes." *Smart Growth Tactics.* Issue No. 28. http://www.mml.org/pdf/map_article_issue28.pdf
2. Chicago Metropolitan Agency for Planning. (2013) *Form-Based Codes: A Step-by-Step Guide for Communities*. http://formbasedcodes.org/files/CMAP_FBCI_GuideforCommunities.pdf
3. EPA, "Examples of Codes That Support Smart Growth Development." Retrieved March 21, 2014, http://www.epa.gov/smartgrowth/codeexamples.htm

In the Village of Oak Park, Ill., form-based code has helped rescue and repurpose older buildings and inspire new mixed-use construction. The improvements are drawing investors and people to the heart of the community's downtown.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

- **"Form-based code is too restrictive and ignores the market."**

Both form-based codes and conventional or traditional zoning codes establish controls on development. While form-based codes emphasize standards that shape the neighborhood or community and offer a great deal of flexibility, conventional codes contain vague standards that often fail to benefit the larger public good. Form-based codes have clear and precise standards and a streamlined and predictable process. This clarity and predictability have opened development potential within many communities by bringing together planning, design, economic development, engineering and public safety professionals. By joining these stakeholders and others, and doing so early in the process, it becomes possible to get input from multiple points of view, assess costs and better understand how public and private partners can implement the vision.[6]

- **"Hybrid or rezoning is better."**

It's not, if design is simply added into conventional zoning. In such a case the focus will likely remain limited to controlling an area's density and uses. However, communities can experience the best of both worlds by using a hybrid system that adopts form-based code for small areas, such as in distinct neighborhoods or corridors, and carefully integrates the use of such form-based code area into the citywide zoning platform.[7]

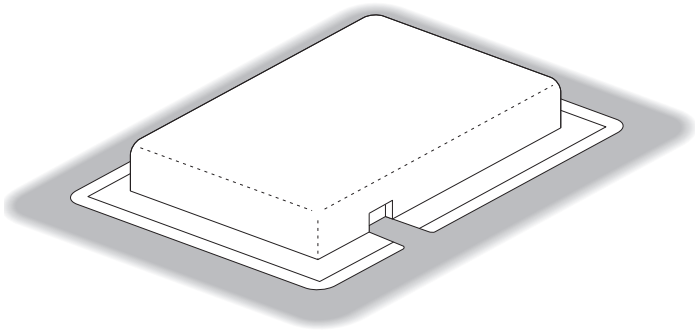
- **"Developers will resist form-based code."**

Developer resistance has been a problem in many communities, especially in smaller towns where developers accustomed to building the same product year after year have had trouble adjusting to new codes. However, many developers welcome form-based code because it enables them to build a higher quality, more aesthetic product. Research shows that codes adopted as the result of a proactive public process are far more successful than those produced without engaging the public in defining the community's vision. When code was applied with little public imput, developer pushback has been the strongest.[8]

HOW IT WORKS

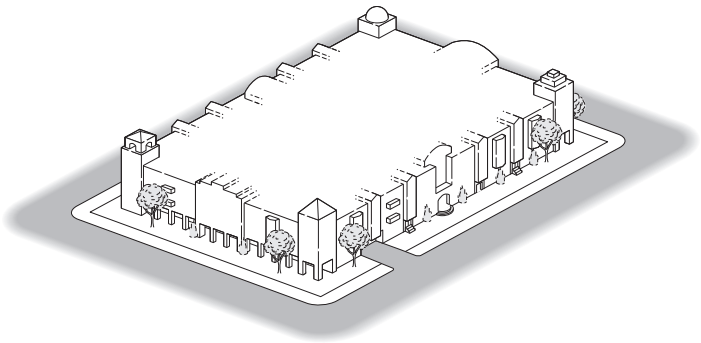
How zoning defines a one-block parcel

Density, use, FAR (floor-area-ratio), setbacks, parking requirements and maximum building height(s) specified.



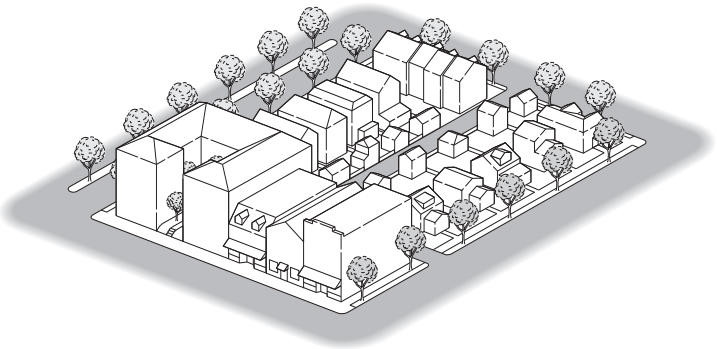
How design guidelines define a one-block parcel

Density, use, FAR (floor-area-ratio), setbacks, parking requirements, maximum building height(s), frequency of openings and surface articulation specified.



How form-based codes define a one-block parcel

Streets and building types (or mix of types), build-to lines, number of floors and percentage of built site frontage specified.



4. Form-Based Codes Institute. Retrieved March 17, 2014, http://www.formbasedcodes.org/what-are-form-based-codes
5. Chicago Metropolitan Agency for Planning. (2013) *Form-Based Codes: A Step-by-Step Guide for Communities*
6. Rangwala, K. (April-May 2013) "Assessing Criticisms of Form-Based Codes." *Better! Cities & Towns.* http://bettercities.net/article/assessing-criticisms-form-based-codes-19967
7. Ibid
8. *New Urban News* (April 2010) "Survey: Combine New Code with Activities and investment." http://www.formbasedcodes.org/files/Survey_Combinewithinvestment.pdf

HOW TO GET IT RIGHT

■ Embrace a public process and build support

Develop an education and awareness campaign prior to implementation, and reach out to developers, community members, elected officials and municipal staff. Government leaders may need to see public support before acting. Developers may need to see political support and funding first. To build support community advocates can share this fact sheet and meet with decision makers, news outlets, experts and others to discuss the benefits of form-based codes. To build public acceptance and understanding, agency staff should host community-wide or neighborhood visioning or design workshops and provide regular updates.

■ Provide municipal funding first

Developers may want to wait for someone else to test the first project with the new code. According to a survey of 35 communities, cities that invested their own funds found that developers followed, but those that put the responsibility solely on developers didn't do as well. A community has to show support politically and financially. Those that do typically get a good return.

■ Make the code mandatory

Mandatory codes provide more predictability to the urban form and help direct development to the code area. If a community has done the right amount of due diligence, held public brainstorming and design sessions and worked toward public buy-in of a common vision, the legal issues should be minimized and the public will already know what to expect.

■ Demonstrate existing successes

Help educate developers to get them comfortable with the new code and goals. Provide existing examples of similar, successful designs.

■ Replace the existing zoning code

The form-based code should replace the existing conventional zoning code for all or part of the community, and all development within the area should abide by the form-based code. This approach generally offers the widest range of opportunities for transforming a targeted area of a community while maintaining established character in others. It also offers the advantage of consistency in regulatory vocabulary and procedures throughout the code.
Tailor the code to the place or neighborhood
Personalize the code to its specific geography, politics and culture in order to be successful. Take the time to identify each neighborhood's character and vision. Periodically review and update the code.

■ Include regulatory plans and standards

A regulating plan is a master plan or zoning map in which different building forms, public streets and spaces are defined based on clear community intentions about the physical character of a designated area, such as a neighborhood or community. Building form standards define the configuration, design features and functions of buildings that frame the public realm.

A BEFORE AND AFTER PHOTO VISION OF CHINCOTEAGUE ISLAND, VIRGINIA

BEFORE: Buildings set back from the street, poor walking and bicycling safety, unused parking, minimal appeal.
AFTER: Buildings close to the street, good walking and bicycling safety, useful parking, strong visual appeal.

SUCCESS STORIES

Redwood City, California: Downtown Precise Plan

Since a new form-based code was adopted in January 2011, there's been more downtown housing development than in the previous five decades combined. All of the development in the two years following the code's enactment was privately constructed. Between 1980 and 2010 most development required assistance from the city's redevelopment agency. Under the updated Downtown Precise Plan, 421 residential units were under construction by August 2013, 280 more units were approved and 471 more were under review — for a total of 1,172 downtown units. In addition, 300,000 square feet of office space was under way. All projects received planning approvals in six months or less without opposition. Downtown Redwood City is now more active than it has been in decades, retail vacancies have fallen and an eclectic dining and pub scene has materialized.

As part of Redwood City, California's "Downtown Precise Plan," El Camino Boulevard is being transformed from commercial to mixed-use zoning.

Cincinnati, Ohio: Citywide Code

In 2010 Cincinnati's vice mayor, Roxanne Qualls, introduced a motion to adopt zoning in support of mixed-use, pedestrian-friendly development around transit stations. A report released after a five-day urban design workshop (which was attended by more than 700 public participants) explained why Cincinnati needed the change: "The city has lost 40 percent of its population since 1950, leaving suburban densities in the city's formerly urban neighborhoods. Many residential buildings and lots sit vacant." The effort grew into citywide form-based code, adopted in May 2013 and achieved with the help of a $2.4 million federal grant. The plan calls for every Cincinnati neighborhood to be mapped and have regulating plans approved. The code has been applied to business districts and key vacant parcels. The city hopes the new form-based code will spur redevelopment of neighborhoods that have been in decline or stagnating for a long time.

Nashville, Tennessee: Community Character

Nashville replaced its conventional zoning with a "Community Character" approach to policy that is based on the look and feel of neighborhoods, centers, corridors and open spaces. The change has resulted in a 75 percent increase in taxable value in the districts where the approach is used, compared to a 28 percent increase in the county over the same time period.

RESOURCES

1. **Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities and Developers.** Parolek, D, et al. (2008) Wiley & Sons
2. **Smart Code.** (2012) Center for Applied Transect Studies, Vol. 9, No. 2. http://www.transect.org/codes.html
3. **The Codes Study: Placemakers.** A website tracking form-based codes throughout the world. Retrieved March 21, 2014, http://www.placemakers.com/wp-content/uploads/2013/05/CodesStudy_May2013_WEB.htm
4. **Examples of Codes That Support Smart Growth Development.** EPA. Retrieved March 21, 2014, http://www.epa.gov/smartgrowth/codeexamples.htm
5. **Community Character Manual** (2012) Metropolitan Nashville-Davidson County Planning Commission. http://www.nashville.gov/Portals/0/SiteContent/Planning/docs/CCM/2012Certified/0_CCM_adopted%20Oct%2025%202012.pdf

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Modern Roundabouts

A LIVABILITY FACT SHEET

Every day in the U.S. more than 20 people are killed at traffic intersections, and many more are seriously injured.[1] Roundabouts — circular intersections that move traffic counterclockwise around a central island — can help reduce these deaths and injuries. Roundabouts are calmer and safer than conventional intersections and have been deemed a "proven safety counter-measure" by the U.S. Department of Transportation.[2]

Modern roundabouts — often the size of a baseball field — differ from rotaries or traffic circles, which can be as big as the stadium itself. Roundabouts feature lower, safer vehicle speeds. They can be 80 feet across with single lanes carrying 25,000 vehicles a day or larger at 200 feet, with double lanes and 45,000 vehicles a day.[3]

Personal injuries and fatalities plummet as much as 90 percent in modern roundabouts when compared to conventional intersections.[4] Roundabouts cause drivers to slow down, ideally to less than 20 mph, which reduces the risks to both pedestrians and drivers.

Because roundabouts can handle 30 to 50 percent more traffic than conventional intersections, they reduce travel delays.[4] Since roundabouts can be designed to be aesthetically pleasing, they help create a sense of place.

By January 2014, roundabouts graced over 2,000 intersections in the U.S., with more planned.[5] Given their safety and placemaking benefits, roundabouts should be considered for many more of the three million intersections in the U.S.

1. U.S. Department of Transportation's Federal Highway Administration (FHWA) (n.d.), safety.fhwa.dot.gov. Modern Roundabouts: A Safer Choice. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10023/transcript/audio_no_speaker/
2. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. Proven Safety Countermeasures. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_005.htm
3. U.S. DOT FHWA (n.d.), fhwa.dot.gov. Roundabouts: An Informational Guide. http://www.fhwa.dot.gov/publications/research/safety/00067/000674.pdf
4. U.S. DOT FHWA (n.d.), safety.fhwa.dot.gov. http://www.fhwa.dot.gov/resourcecenter/teams/safety/teamsafe_rndabout.pdf
5. Kittelson & Associates, Inc. (August 2000), roundabout.kittelson.com. Modern Roundabouts. Retrieved Feb. 3, 2014, http://roundabout.kittelson.com/Roundabouts/Search

Vehicle speeds on Grandview Drive in University Place, Wash., were once as high as 50 mph. After the installation of roundabouts, crashes dropped from one every nine months to none in 14 years.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Roundabouts require too much land."

Roundabouts can be installed on virtually any size street. They can range from single-lane mini-roundabouts to two lanes or more.[6] A single-lane roundabout can be as narrow as 80 feet in diameter, measuring across the circle from the outside edges of the vehicle lanes. A well-placed roundabout can keep a road from being widened, saving up to 10 million dollars per mile in land and construction costs.[7]

■ "The public won't embrace roundabouts."

Before several two-lane roundabouts were installed in Bellingham, Wash., only one-third of people surveyed by the Insurance Institute for Highway Safety supported the creation of a roundabout. Once it was built, the numbers reversed, and 70 percent of respondents became supportive.[8] In another study conducted by the Institute, support for six different roundabouts went from a low of 22 percent to a high of 87 percent five years after installation.[9] Building one roundabout in a community is usually all it takes to convince most people of their benefits.

■ "Roundabouts hurt business."

The lower the speed of traffic through an area, the easier it is to park a car, walk, bicycle and locate and approach a business. Since roundabouts are also quieter than conventional intersections, outdoor seating can be placed nearby. In Golden, Colo., retail sales increased 60 percent after the addition of a string of roundabouts — and that was during the 1989 recession. Sales in Golden outpaced those of all other cities in the state.[10]

■ "Fire trucks, snowplows buses and semis can't use roundabouts."

A "truck apron" in the center of a roundabout can accommodate emergency vehicles and large trucks, including those with wheel-base lengths of 50 or more feet.

■ "Roundabouts don't work for pedestrians or bicyclists."

By using space to pause on the "splitter island," pedestrians need to watch only one direction of traffic at a time, which simplifies the task of crossing the street. The low vehicle speeds through a roundabout — which can be as low as 15 mph — also allow more time for drivers and pedestrians to react to one another, which reduces the chance and consequences of error. A bicyclist can be given the option of riding in the lane of slow-moving cars or crossing as a pedestrian.[11]

■ "Roundabouts aren't good for older adults."

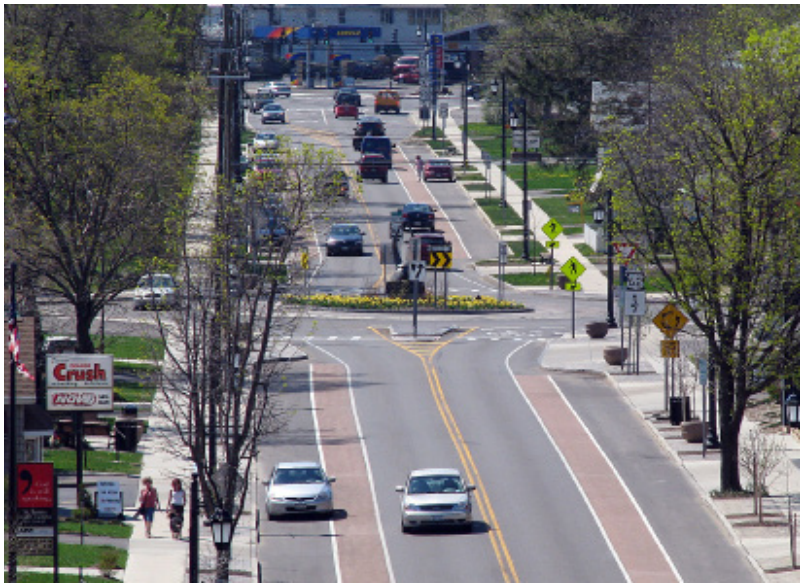
By 2025, about one-quarter of all drivers in America will be over the age of 65. Forty percent of all car crashes that involve drivers over the age of 65 occur at intersections.[12] As we age, we lose our ability as drivers to judge left-turn gaps.[13] Roundabouts don't require those decisions, and they eliminate head-on and right-angle crashes. When collisions do occur, they are at lower speeds and less harmful.

■ "Pedestrians with limited vision can't cross roundabouts."

A known issue with roundabouts and other street crossings — such as mid-block crossings and right-turn slip lanes — is that it's difficult for pedestrians with limited vision to determine when traffic has stopped and it's safe to cross. Solutions are being sought to address this problem.[14, 15]

6. U.S. DOT FHWA (February 2010). Technical Summary: Mini Roundabouts. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10007/fhwasa10007.pdf
7. American Road and Transportation Builders Association (n.d.), ARTBA.org: electronic references. http://www.artba.org/faqs/#20
8. Insurance Institute for Highway Safety (February 2013). Public Opinion, Traffic Performance, the Environment, and Safety after the Construction of Double-Lane Roundabouts. Retrieved Feb. 3, 2014, http://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2033
9. Transportation Research Record: Journal of the Transportation Research Board (2007). Long-Term Trends in Public Opinion Following Construction of Roundabouts. http://trb.metapress.com/content/1162251045856345/?genre=article&id=doi%3a10.3141%2f2019-26
10. City of Golden and LSC Transportation Consultants, Inc. (April 2006). Development Opportunities: Golden, Colorado Case Study. http://lscdenver.com/Papers/Minnesota%20Revised%202006.pdf
11. National Cooperative Highway Research, Transportation Research Board, National Academies of Science. Roundabouts in the United States, Program Report 572. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_572.pdf
12. U.S. FHWA. (n.d.) Modern Roundabouts: A Safer Choice. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10023/transcript/audio_no_speaker/
13. Owsley, C. (2004). Driver Capabilities in Transportation in an Aging Society: A Decade of Experience. Technical Papers and Reports from a Conference: Bethesda, MD.; Nov. 7-9, 1999. Washington, D.C.: Transportation Research Board
14. Pedestrian Access to Roundabouts: Assessment of Motorists' Yielding to Visually Impaired Pedestrians and Potential Treatments to Improve Access, FHWA. http://www.fhwa.dot.gov/publications/research/safety/pedbike/05080/

HOW TO GET IT RIGHT



In Hamburg, N.Y., a series of roundabouts on Route 62 helps calm traffic and create a sense of place.

This approach to a roundabout in San Diego, Calif., reduces the distance people must cross.

The success of any tool lies in getting it right, and this is especially true of modern roundabouts. Try the following:

■ Adopt a roundabout-first policy

Whenever a project includes reconstructing or constructing an intersection, analyze the feasibility of using a roundabout instead. This approach is recommended by the U.S. Department of Transportation's Federal Highway Administration and backed by the Insurance Institute for Highway Safety.[16]

■ Embrace a public process and build support

Since roundabouts can be a new idea, elected leaders and agency staff may need to seek public support first, to inspire approval and navigate implementation. For example, community advocates can print this fact sheet, talk to neighbors, build community support and then meet with decision makers, news outlets, experts and others to discuss the benefits of roundabouts. Agency staff can engage the public in a meaningful process, hosting interactive design workshops to build public acceptance and understanding.

■ Design for speeds lower than 20 mph

Fast-moving vehicles kill people and divide places. A pedestrian hit by a vehicle at 20 mph has a 90 percent chance of survival while the odds of surviving a 40 mph impact are only 10 percent.[17] Good roundabout design ensures that drivers slow down to 15 or 20 mph. This protects pedestrians, reduces pollution and noise and creates a more pleasant neighborhood.

■ Keep dimensions tight

To keep traffic calm and therefore safe for all roadway users, roundabouts should feature context-appropriate design elements that reduce speed. Examples include tight entry and exit turn radii, landscaping, narrow entry and circulatory lanes, a truck apron for large vehicles and splitter lanes to help pedestrians cross two or more traffic lanes.

■ Make it beautiful

An aesthetically pleasing roundabout can create a sense of place, frame a neighborhood, establish an entry point into a business district and serve as a canvas for public art or a garden.

15. Skene, M., Jacobson, M., Havercroft, D., Boan, J. (n.d.). Considerations for Accommodating Visually Impaired Pedestrians at Roundabouts, Institute for Transportation Engineers. http://www.ite.org/Membersonly/annualmeeting/2010/AB10H1002.pdf
16. Smart Transportation Guide, Planning and Designing Highways and Streets that Support Sustainable and Livable Communities. Chapter 6. http://www.state.nj.us/transportation/community/mobility/pdf/smarttransportationguidebook2008.pdf
17. Federal Highway Administration (FHWA). Proven Safety Countermeasures. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_0

SUCCESS STORIES

San Diego, California: La Jolla Boulevard

A string of five roundabouts along this road in the Bird Rock neighborhood has allowed the city to reduce the road from five vehicle lanes to two, while also cutting travel time, adding on-street parking, attracting new businesses and still moving 23,000 vehicles a day. The number of people walking went up, noise pollution plummeted and the increase in walking, bicycling and street life is bringing new business to retailers.

Hamburg, New York: Route 62

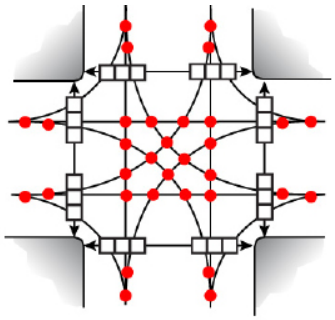
By the 1990s, business had declined along the Route 62 commercial district. Empty storefronts pushed shoppers out to malls and big box stores. The road was often congested and presented hazards for cyclists and pedestrians. A state plan emphasized wider roads and signalized intersections. But a group of residents banded together as the "Route 62 Committee" and created a new vision for Route 62 based on walkability and calmer traffic. Roundabouts have reduced the number and severity of crashes, congestion has been eased and emissions from idling cars have been reduced.

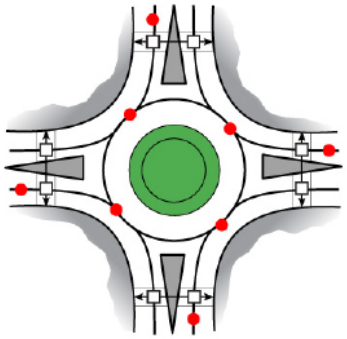
Bradenton Beach, Florida: Bridge Street

One pedestrian per year was being killed at the intersection of Bridge Street and North Gulf Drive. With 18,000 cars and trucks moving daily, the traffic on this street separated residents and visitors from the beach. People could see the beach, but they could not walk to it without taking severe risks. A roundabout was built and the police chief reports there hasn't been a recorded crash of any type since. With many more people walking to the beach, parking eased, and the roundabout became one of the nation's first to kick-start downtown reinvestment, which is now bustling with pedestrians, new homes and retail activity.

WHY IT WORKS

As the illustrations below demonstrate, roundabouts harbor far fewer potential conflict points than conventional intersections, making streets safer for all users.





RESOURCES

1. **Roundabouts**, FHWA. http://safety.fhwa.dot.gov/intersection/roundabouts/
2. **Technical Summary: Roundabouts**, FHWA. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10006/fhwasa10006.pdf
3. **Technical Summary: Mini Roundabouts**, FHWA. http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10007/fhwasa10007.pdf
4. **Roundabouts: An Informational Guide,** FHWA, Lee August Rodegerdts, National Research Council (U.S.). Transportation Research Board, National Cooperative Highway Research Program, American Association of State Highway and Transportation Officials, 2010
5. **Geocoded National Roundabout Database**. http://roundabouts.kittelson.com/
6. **Roundabout Benefits**, Washington State Department of Transportation. http://www.wsdot.wa.gov/safety/roundabouts/
7. **Insurance Institute for Highway Safety**. http://www.iihs.org/
8. **Proven Safety Countermeasures**, FHWA. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_0

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Parking

A LIVABILITY FACT SHEET

Parking in the United States has a high cost. Cars sit unused 95 percent of the time, and motorists park for free in 99 percent of the places they go.[1] In three out of 10 car rides to nearby destinations, studies show that drivers spend three to eight minutes looking for parking.

Since the average American household has 1.9 automobiles,[2] many municipalities require two covered parking spaces for each single- and two-family dwelling. Most cities also require off-street parking spaces — up to four parking spaces for every 1,000 square feet of office space.[3] In low-density settings with no transit options, parking can take up more than 50 percent of the land used in a development.[4]

"The cost of all parking spaces in the U.S. exceeds the value of all cars and may even exceed the value of all roads," says UCLA urban planning researcher Donald Shoup.[5] The opportunity cost can be high as well, since each parking space can reduce new housing units, businesses and social, recreational or other uses by 25 percent.[6]

About 96 percent of the financial cost of parking is bundled into rents and housing costs, higher prices in stores, and myriad other charges. Only about 4 percent of the cost is covered by pay-as-you-go parking, such as metered parking. In fact, if drivers paid for parking as they used it, the total expense of operating a vehicle would roughly double.[7]

Off-street parking is the most expensive type of parking. Each space typically uses 300 to 350 square feet, costs between $3,000 and $27,000 to build and about $500 a year to maintain and manage.[8]

On-street parking is more efficient and can be a strong revenue generator. If a single on-street parking space turns over frequently — about 12 to 15 uses a day — it brings in as much as $300,000 in revenues to nearby businesses.[9]

1. Shoup, D. The University of California Transportation Center, Berkeley, Calif. (1997) "The High Cost of Free Parking." *Journal of Planning Education and Research*, Vol. 17, pp 3-20, UCTC No. 351. http://www.uctc.net/papers/351.pdf.
2. U.S. Department of Transportation. (1990) Nationwide Personal Transportation Survey
3. Shoup, D. The University of California Transportation Center, Berkeley, Calif. (1997) "The High Cost of Free Parking."*Journal of Planning Education and Research*, Vol. 17, pp 3-20, UCTC No. 351. http://www.uctc.net/papers/351.pdf
4. U.S. Environmental Protection Agency. (January 2006) Parking Spaces / Community Places Finding the Balance through Smart Growth Solutions. EPA 231-K-06-001. http://www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf

On-street parking, such as the kind seen on this Seattle block, is the most beneficial type, and head-out angled parking is the safest and easiest method — drivers have stopped traffic before backing in and can see oncoming traffic when pulling out. In addition, loading is more convenient and separated from moving traffic.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "There isn't enough parking in busy areas."

In Raleigh, N.C., there are about 40,000 parking spots downtown, of which approximately 9,000 are in parking decks managed by the city. The use of these decks is below 60 percent on most days and the city carries more than $100 million in debt for them.[10] A study of office buildings in 10 California cities found that the peak parking demand averaged only 56 percent of capacity. In another study, peak-parking demand at nine suburban office parks near Philadelphia and San Francisco averaged only 47 percent of capacity and no office park had a peak parking demand greater than 60 percent of capacity.[11]

■ "We need parking minimums."

Most cities in the U.S. include parking minimums in their zoning codes, but minimum requirements are causing more off-street parking to be built than needed. This causes excessive development costs. Where excess parking is not used, empty spaces can be a blight within a shopping area or a neighborhood. Eliminating or reducing off-street parking requirements allows developers more flexibility in the amount of parking they provide and how they provide it. This change removes a barrier to new investments, especially in downtowns and transit centers, and potentially makes the final product more affordable.[12]

■ "Free parking brings customers to our store."

Given a choice, motorists usually prefer free parking, but consumers ultimately pay for parking through higher taxes and retail prices and reduced wages and benefits. The choice is actually between paying directly or indirectly.[13] In Portland, Ore., property values and customer volume in parking-restricted areas near transit stations are higher than in other areas.

Left: **Spaces can be more available if regulated and priced to prioritize short stays instead of all-day parking.**
Right: **In Seattle, Wash., head-out angled parking provides motorists with a clear view before pulling out.**

5. Shoup, D. 1999, abstracted from Journal) *Instead of Free Parking*. http://shoup.bol.ucla.edu/InsteadOfFreeParking.pdf
6. Transform. (2002) *Housing Shortage/ParkingSurplus*. http://www.transformca.org/files/reports/housing-shortage-parking-surplus.pdf
7. Durning, A. Sightline Institute. (August 2013) "Parking Karma." Sightline Daily: News & Views for a Sustainable Northwest. http://dailysightline.org/2013/08/28/parking-karma/
8. Litman, T. Victoria Transport Policy Institute. (August 2013) Transportation Cost and Benefit Analysis I: Parking Costs. http://www.vtpi.org
9. Shoup, D. 1999, abstracted from Journal) *Instead of Free Parking*. http://shoup.bol.ucla.edu/InsteadOfFreeParking.pdf
10. Wig, J. "The State of Parking in Downtown Raleigh." (June 2013) Raleigh Public Record. http://bit.ly/1oyfwhf
11. Shoup, D. The University of California Transportation Center, Berkeley, Calif. (1997) "The High Cost of Free Parking." Reprinted from Journal of Planning Education and Research, Vol. 17, pp. 3-20, UCTC No. 351. http://www.uctc.net/papers/351.pdf
12. Metropolitan Transportation Commission. (June 2012) *Parking Code Guidance: Case Studies and Model Provisions.* http://bit.ly/1kGsaLY
13. Municipal Research and Services Center. "Parking Demand and Pricing." Retrieved March 9, 2014: http://www.mrsc.org/about.aspx
14. Litman, T. Victoria Transport Policy Institute. (August 2013) *Transportation Cost and Benefit Analysis II – Parking Costs*. http://www.vtpi.org/tca/tca0504.pdf
15. Litman, T. Victoria Transport Policy Institute. (Updated December 2010) TDM Encyclopedia-Location Efficient Development and Mortgages: Taking Advantage of Consumer and Transportation Benefits at Accessible Locations. http://www.vtpi.org/tdm/tdm22.htm

HOW TO GET IT RIGHT

The success of any tool lies in getting it right, and this is true of parking. Try the following:

■ Unbundled parking

When selling a townhouse, condo or other living unit, a developer can be given permission to rent or sell parking spaces separately. This arrangement often reduces the number of cars a homeowner chooses to own and store. For a parking deck, this can amount to more than $27,000 per space.[14]

■ Parking in-lieu fees

Consider allowing developers to pay a fee in lieu of providing parking. For example, Palo Alto, Calif., allows developers to pay the city $17,848 for each parking space that's not provided. The city then uses the fee revenue to provide publicly owned parking spaces nearby.

■ Shared parking

Public parking spaces can allow shared use among different private and/or public sites that have peak parking demands at different times. Shared public parking is more efficient than single-use private parking because fewer spaces are needed to meet the total peak parking demand in the vicinity. Large numbers of peak parking spaces are no longer needed for every site.

■ Appropriate variances

A community should work with developers to encourage on-street parking in lieu of off-street parking. For example, parking variances can be granted in exchange for developer- or business-installed bicycle parking, which is a beneficial trade-off since 12 bicycles can fit into one vehicle parking space.

■ Incentives to reduce demand

Policies should allow the developer to reduce the demand for parking rather than increase its supply. When good transit services are available, a program allowing employees to trade in their parking passes for cash is a means to reduce demand. Another tool is "location-efficient housing." Residents and employees in such areas tend to drive less, rely more on alternative forms of transportation and enjoy better transportation options than those who live or work in less accessible areas.[15] This can be calculated to reduce parking demand. Other practices to reduce demand for parking include using existing spaces more efficiently, targeting different types of users, sharing parking between uses with different peak demands, and shifting the cost of parking from the general public onto the users.[16]

■ Public/private partnerships

Investments made jointly by the public and private sectors can be used to help pay for parking. These partnerships can reduce the public sector's direct debt burden while also providing needed infrastructure. ParkIndy, a for-profit corporation, manages parking in Indianapolis, saving the city $3 million per year and eliminating its financial risk. Indianapolis hopes to net around $600 million over the life of the contract.

■ The ideal parking garage

Mixed-use garages that provide ground-level retail, then two or three stories of parking, and condos or apartments on the top floor, can provide an immediate supply, then permit reductions over time. As the need for parking declines some or many of the parking spaces can be converted into offices or living units.

■ Reduced impact of surface parking lots

Reduce parking stalls to 8 feet wide for low-turnover spaces and dedicate a certain percentage to compact cars. With careful design it's possible to get in two rows of 90-degree parking plus service lanes within a 54-foot-wide parking area. Consider minimum landscaping requirements of 15 percent, a lot of tree canopy, rain gardens, bioswales, pavers or other pervious materials when practicable, and treat all water on site. Green space should be edges separating the lot from adjacent streets or landscaped sections that break up the lot.

■ Better building design

To improve the streetscape consider dedicating the first floor of public parking structures to retail use. Developers can undertake infill projects without assembling large sites to accommodate on-site parking, and architects have greater freedom to design better buildings in a more pedestrian-friendly environment.

16. Chicago Metropolitan Agency for Planning. (April 2012) Parking Strategies to Support Livable Communities. http://1.usa.gov/1i9o4XY
17. McCahill, C., Garrick, N. (February 2013) "Cars and Robust Cities are Fundamentally Incompatible." *The Atlantic, CITYLAB*. http://www.citylab.com/commute/2013/02/cars-and-robust-cities-are-fundamentally-incompatible/4651/

SUCCESS STORIES

Oakland, California: Fruitvale Transit Village

A large mixed-use mixed-income development grew out of community resistance to the Bay Area Rapid Transit system's plan to build a parking garage between the Fruitvale BART station and the Latino neighborhood's commercial center. The local Unity Council worried the structure would hasten the decline of the already distressed neighborhood. BART withdrew the plan and agreed to work with the neighborhood on an alternative, so the parking garage was built nearby on Union Pacific Railroad property. The Fruitvale Transit Village now links the neighborhood and BART station with a pedestrian corridor and plazas lined with shops, offices, apartments and community services. The village includes a clinic, child development center, senior center and library, all within walking distance.

Calgary, Alberta, Canada: Downtown

The city of Calgary has determined that 24 parking spaces per 100 jobs is the right ratio. Calgary charges market prices for its downtown parking spots, which range from a pricey $700 to $900 per month. Rates are adjusted each year to assure balanced supply and use. This pricing practice has helped fuel a resurgence of more compact living, growing the economy in and around the downtown and resulting in miles of new trails, world class pedestrian and bicycle bridges, and rebuilt transit platforms that move trains more efficiently.

A Tale of Three Cities: Less is More

Since 1980, Berkeley, Calif., as well as the Massachusetts town of Arlington and city of Cambridge, began limiting their surface parking spaces. Research shows that the number of people and jobs has climbed, as have incomes. Less parking has enabled the urban fabric to stitch back together with more room for shops, restaurants, jobs and other things that make cities great. The extra parking isn't needed since people are driving less, living close to the urban core where nearly 30 percent walk or bike to work.[17]

WHY IT MATTERS

BIG MONEY FOR FREE PARKING

$105 billion to $310 billion*

NASA budget: $18.56 billion

National defense budget: $705.6 billion

Federal education spending: $65.5 billion

PARKING IS WORTH MORE THAN CARS

Estimated annual average value of parking for one vehicle: $12,000

Average depreciated construction value of roads, per vehicle: $6,542

Approximate average value of one U.S. vehicle: $5,507

* The indirect costs to Americans based on assumptions about the number of parking spots nationwide and those spots' building and operating costs in 2011 dollars. Those figures equaled to 1.2 to 3.7 percent of total U.S.. economic output. *Source: myparkingsign.com/blog/free-parking, citing "Changing the Future" by Donald Shoup ,* The High Cost of Free Parking *(2nd Ed) pp. 589-605, American Planning Association.*

RESOURCES

1. **Instead of Free Parking**. Donald Shoup. UCLA. http://shoup.bol.ucla.edu/InsteadOfFreeParking.pdf
2. **Parking Best Practices and Strategies for Supporting Transit Oriented Development in the San Francisco Bay Area.** MTC. (June 2007) http://www.mtc.ca.gov/planning/smart_growth/parking/parking_seminar/Toolbox-Handbook.pdf
3. **Parking Code Guidance: Case Studies and Model Provisions.** MTC. (June 2012) http://bit.ly/1kGsaLY
4. **Parking Spaces/Community Places Finding the Balance through Smart Growth Solutions.** EPA. (January 2006) http://www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf
5. **Walkable 101: Head-Out Angled Parking**. WALC Institute. Video. http://www.walklive.org/project/videos/
6. **Housing Shortage, Parking Surplus.** Report. (July 2002) Transform.
7. **Principles of Urban Retail Planning and Development,** Chapter 8: Parking. (2012) Congress for New Urbanism. http://bit.ly/1mYPpPp
8. **Cruising for Parking**. *Transport Policy*, Vol. 13, No. 3, 2006. Donald Shoup. http://shoup.bol.ucla.edu/Cruising.pdf

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Revitalization Without Displacement

A LIVABILITY FACT SHEET

As communities throughout the United States are redeveloped to become more walkable and livable, the efforts risk displacing an area's current, often longtime residents and businesses.

Displacement is of particular concern in places that have suffered years of disinvestment. Mixed-use revitalization — and its potential to restore health and prosperity to a community — also carries with it the potential to increase property values and, therefore, real estate prices. While many in the community will profit from the improvements and rising values, others may not.

The Centers for Disease Control and Prevention explains that "displacement happens when longtime or original neighborhood residents move from a gentrified area because of higher rents, mortgages and property taxes." The risks to community health associated with this type of displacement are so significant that the CDC offers strategies for mitigating the potential impact of gentrification, which "is often defined as the transformation of neighborhoods from low value to high value."[1]

It behooves all redeveloping communities to ensure that revitalization increases community health and stability by providing such features as affordable housing, robust transit services and access to transit, as well as a range of needed services and shops within walking and bicycling distance. It's important that these improvements come without displacement,[2] especially of lower-income and older residents and families.

The AARP Public Policy Institute underscores the mobility impact to older residents who are displaced into areas that are not as livable or walkable: "In areas far from transit, areas with few community features and services nearby and areas with poor transit service, losing mobility can mean losing independence."[3]

1. Centers for Disease Control and Prevention. "Health Effects of Gentrification." Retrieved February 2014, http://www.cdc.gov/healthyplaces/healthtopics/gentrification.htm
2. PolicyLink. "The Equitable Development Toolkit." Retrieved February 2014, http://bit.ly/1tJE3RX
3. AARP Public Policy Institute. (September 2009) *Preserving Affordability and Access in Livable Communities: Subsidized Housing Opportunities Near Transit and the 50+ Population*. http://www.aarp.org/content/dam/aarp/livable-communities/learn/housing/preserving-affordability-and-access-in-livable-communities-2009-aarp.pdf

In Macon, Ga., a revitalization effort has been underway for several years. Community leaders are seeking to reduce the risk of displacement by developing mixed-income housing, promoting neighborhood stabilization policies, restoring an historic park, building sidewalks and improving transportation connections.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Mixed-use revitalization displaces longtime, lower-income or older residents."

Displacement due to revitalization (one potential impact of gentrification) is a concern. However, some studies suggest that positive socioeconomic and racial diversity is an enduring feature of gentrifying neighborhoods.[4] Long-term residents can benefit when their housing options are preserved and the community improves.[5] Ensuring a mix of housing options helps make that happen. It's recommended that longtime residents be supported in their efforts to stay in the neighborhood and in their homes and that the wealth created by gentrification also be used for the benefit of lower-income residents.[6] In some places, revitalization may actually make the community more supportive of all residents. Since the mix of housing options provided in livable neighborhoods is supportive of people with differing housing needs (be the needs specific to a home's size, cost, amenities or something else), more residents are able to remain in a neighborhood even if their income, health or housing requirements change.[7]

■ "Housing and jobs prevent displacement, not walkability."

Housing and jobs are indeed critical factors. But very low income American families spend 55 percent of their household budget on transportation costs, and the average household spends more than $8,000 a year on automobile costs.[8] Revitalized places made walkable and accessible to transit can reduce these expenses, which makes the community more accessible to and supportive of all people. [9]

■ "Rent controls are the single best solution."

Studies indicate that over time, rent controls increase disparities and don't provide a long-term solution to affordable housing.[10] According to the AARP Policy Book, "although rent control does not effectively solve the affordable housing problem in many parts of the country, it may be desirable for states and localities to retain existing rent control ordinances for a limited time in areas with severe housing shortages or where development pressures result in the significant loss of affordable units."

4. Testimony of Lance Freeman, Associate Professor at the Columbia University Graduate School of Architecture, Planning and Preservation, to the National Commission on Fair Housing and Equal Opportunity. (2008) http://www.prrac.org/projects/fair_housing_commission/atlanta/freeman.pdf
5. Daniel Hartley. "Gentrification and Financial Health," Federal Reserve Bank of Cleveland. Retrieved March 2014, http://www.clevelandfed.org/research/trends/2013/1113/01regeco.cfm
6. Testimony of Lance Freeman, Associate Professor at the Columbia University Graduate School of Architecture, Planning and Preservation, to the National Commission on Fair Housing and Equal Opportunity. (2008) http://www.prrac.org/projects/fair_housing_commission/atlanta/freeman.pdf
7. Smart Growth America. *Housing*. Retrieved Feb. 24, 2014, http://www.smartgrowthamerica.org/issues/housing/
8. Livable Streets Alliance. "Facts and Stats." Retrieved Feb. 24, 2014 from http://www.livablestreets.info/facts-and-stats
9. AARP. *The Policy Book: AARP Public Policies 2013-2014*. http://policybook.aarp.org/

Affordable housing can be integrated into compact, mixed-use development, such as in the 50-unit Tower Apartments in suburban Rohnert Park, Calif. Built in 1993, this urban design development has raised the community's opinion of affordable housing. The style reflects the older architecture in the area.

HOW TO GET IT RIGHT

Mixed-use revitalization without displacement is best achieved when a municipality plans for and financially supports affordable housing for all income levels in the community. The following strategies come from guidance documents produced by the Centers for Disease Control and Prevention, PolicyLink and the AARP Public Policy Institute.

■ Preserve, promote and support housing that is affordable for people of all income levels

Subsidized housing that currently exists, particularly in areas near transit, should be preserved.[11] In addition, communities can develop housing, increase other funding for affordable housing and establish warning systems for properties with expiring federal subsidies so resources can be allocated to protect the housing. States can administer housing trust funds and development banks for low-income housing services (such as repair, rehabilitation, rental assistance and the construction of affordable housing).[12] These funds should promote housing options in livable communities, including locations near transit options. In addition, new or renovated housing should include universal design features so residences can be broadly accessible, including to older adults and individuals with disabilities.

■ Develop mixed-income communities and adopt inclusionary zoning

Mixed-income neighborhoods or developments can be mixed-use and include single-family and multi-family units.[13] Such development is often supported by inclusionary zoning. According to PolicyLink, "most inclusionary zoning programs require external comparability between affordable and market-rate units so that lower-income families can purchase homes indistinguishable from the rest of the development. This has helped eliminate the harmful stigma that is so often attached to affordable housing."

Mandatory inclusionary zoning requires developers to build affordable units, usually in exchange for increased development rights or subsidies. Voluntary inclusionary zoning may provide an incentive to developers who choose to opt in. However, PolicyLink does warn: "While voluntary programs receive less opposition from developers, mandatory policies have produced far more affordable units."

■ Increase individuals' assets to reduce dependence on subsidized housing

Create home-ownership programs and prioritize job-creation strategies through community development corporations and resident-owned financial institutions that help low-income people build assets. Support local hiring and livable-wage provisions.[14]

■ Encourage employer-assisted housing

In these housing programs an employee purchases a residence with some financial assistance from his or her employer. Such programs often help first-time home buyers, and home ownership has the added benefit of enabling people to build both equity and financial assets. Employer-assisted housing is especially helpful to working families by enabing them to secure affordable housing near the workplace. Employers benefit by retaining qualified workers, improving community relations and helping to revitalize neighborhoods.

■ Explore other strategies geared toward ensuring that communities revitalize without displacement

- Integrate housing, transportation and land-use planning
- Adopt local and regional zoning practices (such as form-based code) that encourage compact, mixed-income, mixed-use development
- Design "Complete Streets" that accommodate drivers as well as pedestrians, bicyclists and transit users of all ages and abilities
- Reduce parking requirements
- Conduct studies and health impact assessments to ensure that new developments benefit existing residents
- Minimize tax burdens on older lower-income property owners as well as on renters (renters pay property taxes indirectly).
- Engage community members in the development processes

10. Ibid
11. PolicyLink. "The Equitable Development Toolkit" Retrieved February 2014, http://bit.ly/1tJE3RX
12. AARP. *The Policy Book: AARP Public Policies 2013-2014*. http://policybook.aarp.org/
13. Centers for Disease Control and Prevention. "Health Effects of Gentrification." Retrieved February 2014, http://www.cdc.gov/healthyplaces/healthtopics/gentrification.htm
14. PolicyLink. "The Equitable Development Toolkit." Retrieved February 2014, http://bit.ly/1tJE3RX

SUCCESS STORIES

Macon, Georgia: Tattnall Place

This 97-unit, mixed-income development opened in March 2006. Financed with tax credit equity, HOPE VI funds and a grant from the city of Macon, it is the centerpiece of the Beall's Hill redevelopment. Sixty-five units are for households at or below 60 percent of the area median income. Floor plans include two- and three-story units with large front porches. Community amenities include a swimming pool and a computer center. The project won the 2006 Magnolia Award for Superior Design. Local leaders have preserved housing and re-activated a public park in the area.

Preserved housing in Tattnall Place, Macon, Ga., is part of the Beall's Hill mixed-income redevelopment project.

Denver, Colorado: Inclusionary Zoning

To address a growing affordable-housing crisis as real-estate values grew faster than incomes, Denver adopted an inclusionary housing ordinance in 2002. Developments of more than 30 for-sale units must set aside 10 percent as affordable for households earning 50 to 95 percent of the area's median income, depending on household size. Offsets to make the set-asides feasible to developers include a 10 percent density bonus, a $5,600 subsidy per unit for up to 50 units, parking requirement reductions and expedited permits. A total of 3,395 affordable homes were built within three years of the policy's inception.

Portland, Oregon: New Columbia

New Columbia is a diverse 82-acre neighborhood built on the site of what had been World War II-era worker barracks and then public housing. Completed in 2007 with HOPE VI and other funds, New Columbia is a walkable community with front porches, two community gardens, a Main Street and "Village Market," several parks and public spaces, a public elementary school, a Boys & Girls Club and a recreation center. New Columbia has 854 housing units, including 622 rental homes and 232 resident-owned homes. Of the rentals, 297 units have a public housing operating subsidy, 73 units have a project-based Section 8 subsidy, 66 units are for seniors and 186 additional units are for households earning less than 60 percent of the area median family income. Of the resident-owned properties, 128 were sold at market rate, 98 were developed by non-profit builders such as Habitat for Humanity and eight were developed using a cohousing model.

RESOURCES

1. **Equitable Development Toolkit.** PolicyLink. http://www.policylink.org/site/c.lkIXLbMNJrE/b.5136575/k.39A1/Equitable_Development_Toolkit.htm
2. **Mixed-Income Housing Near Transit: Increasing Affordability With Location Efficiency**. Center for Transit-Oriented Development. http://www.reconnectingamerica.org/resource-center/books-and-reports/2009/tod-201-mixed-income-housing-near-transit-increasing-affordability-with-location-efficiency/
3. **Preserving Affordability and Access in Livable Communities: Subsidized Housing Opportunities Near Transit and the 50+ Population.** AARP. http://www.aarp.org/home-garden/housing/info-09-2009/2009-15.html
4. **Mixed-Income Housing: Myth and Fact**. Urban Land Institute. http://thejcra.org/jcra_files/File/resources/mixed%20income%20housing.pdf
5. **The Policy Book: AARP Public Policies 2013-2014.** Chapter 9. AARP Livable Communities. http://policybook.aarp.org/

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Road Diets

A LIVABILITY FACT SHEET

Most drivers base their travel speed on what feels comfortable given the street design. The wider the road, the faster people tend to drive and, the faster the car, the more severe the injuries resulting from a crash.[1] Research suggests that injuries from vehicle crashes rise as the width of a road increases.

To protect both pedestrians and drivers, many communities are putting their roads on "diets" by reducing street widths and vehicle lanes. The gained space is being reallocated toward other ways of getting around — such as walking, bicycling and public transit.

The most common road diet involves converting an undivided four-lane road into three vehicle lanes (one lane in each direction and a center two-way left-turn lane).[2] The remaining fourth lane space can be used to create such features as bicycle lanes, pedestrian crossing islands, bus stops, sidewalks and on-street parking.[3]

Road diets work best on streets that have daily traffic volumes of 8,000 to 20,000 vehicles. When done properly, a road diet improves the performance and efficiency of the street and makes it safer for all users.

For instance, by having pedestrians walk across only one lane of traffic at a time — rather than up to four or more — a road diet reduces the risk of crashes and serious injuries. At the same time, motorists experience a shorter delay while waiting at traffic lights and other crossings.[4]

A road diet can help a neighborhood become a more desirable place to live, work and shop, which in turn can be a boost to businesses and property values.

Wider sidewalks lined by trees and dotted with benches, bicycle racks, streetlights and other useful additions help create a lively, attractive streetscape. Bike lanes, on-street vehicle parking, curb extensions and "parklets" (tiny parks created from former parking spots) can be used to provide a buffer between people who are walking and motor vehicles on the move.

1. Federal Highway Administration, *Proven Safety Countermeasures*. Retrieved March 4, 2014, http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.pdf
2. Safe Routes to School National Center (November 2013), "Safe Routes to School Online Guide." http://guide.saferoutesinfo.org/engineering/tools_to_reduce_crossing_distances_for_pedestrians.cfm#diet
3. Tan, C.H. Federal Highway Administration, FHWA-HRT-11-006. Vol. 75, No. 2. (September/October 2011), "Going on a Road Diet." *Public Roads*, http://www.fhwa.dot.gov/publications/publicroads/11septoct/05.cfm

A road diet on East Boulevard in Charlotte, N.C., reduced travel speeds, bicycle and pedestrian injury rates and the number of rear-end and left-turn collisions. (Photo courtesy city of Charlotte)

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Road diets divert traffic."

Drivers tend to use primary roads that provide the most direct and efficient route to a destination. Well-designed road diets do not divert drivers onto other roads. While traffic often drops during construction, it typically returns to normal or increases within six months of completion. Many roads actually experience an increase in vehicle traffic after a successful diet.[5]

■ "Road diets increase congestion."

On roads used by fewer than 20,000 vehicles per day, road diets have a minimal or positive impact on vehicle capacity. Left-turning vehicles, delivery trucks, police enforcement and stranded vehicles can move into a center lane or bike lane, which eliminates double-parking and reduces crash risks.[6]

■ "Road diets increase crashes."

Road diets actually reduce rear-end collisions and sideswipe crashes by slowing vehicle speeds by 3 to 5 mph. Road diets decrease by 70 percent the frequency of people driving more than 5 mph over the speed limit. Data collected on road diets in two very different settings (several small towns in Iowa and a group of larger cities and suburbs in California and Washington state) confirmed that road diets improve safety. The research showed a 47 percent reduction in crashes in the Iowa towns and a 19 percent drop in crashes in the more heavily traveled corridors of California and Washington.[7]

■ "Road diets aren't good for public transit."

Transit conflicts can be avoided with good planning, such as incorporating a center lane so motorists can move around stopped buses and adding side pull-out bays for buses.[8,9]

■ "Road diets are bad for business."

Road diets increase and enhance business activity by reducing traffic speeds (which helps motorists notice the shops, eateries and businesses they're driving alongside) and by accommodating pedestrians and bicyclists (who, by the way, tend to spend more money at local businesses than drivers do).[10] Road diets often create more street parking spaces, which is helpful to businesses. In addition, the slower speeds, better sight lines and narrower lanes are safer for both drivers and non-drivers (aka customers), and center-turn lanes provide motorists with an easier and safer way to make right and left turns, including for entering and exiting driveways. [11]

■ "Road diets are being reversed."

With thousands of road diets completed nationwide, there are few reports of any being reversed. On the contrary, road diets are proving to be effective, safe and popular. Interest among transportation engineers and planners is booming as handbooks, guidelines and other resources become available.[12]

■ "Road diets slow down emergency responders."

By not using short speed humps and stop signs, a road diet can accommodate emergency vehicles without increasing response times.[12] Drivers can pull into bicycle lanes to move out of the way, and a center-turn lane can be used by responders needing to pass other vehicles.[13]

■ "People don't like road diets."

The Electric Avenue road diet in Lewistown, Pa., was opposed by 95 percent of residents when it was first proposed; after completion, nearly 95 percent of residents are supportive of the changes.[14]

4. Burden, D., Lagerway, P., Walkable Communities, Inc. (March 1999), *Road Diets: Fixing the Big Roads*, http://www.walkable.org/assets/downloads/roaddiets.pdf
5. Tan, C.H. Federal Highway Administration, FHWA-HRT-11-006, Vol. 75, No. 2 (September/October 2011), "Going on a Road Diet". *Public Roads*. http://www.fhwa.dot.gov/publications/publicroads/11septoct/05.cfm
6. Burden, D., Lagerway, P., Walkable Communities, Inc. (March 1999), *Road Diets: Fixing the Big Roads*. http://www.walkable.org/assets/downloads/roaddiets.pdf
7. Highway Safety Information System (August 2010), *Evaluation of Lane Reduction "Road Diet" Measures on Crashes*, http://www.fhwa.dot.gov/publications/research/safety/10053/10053.pdf
8. Federal Highway Administration, *Proven Safety Countermeasures*. Retrieved March 4, 2014 from http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.pdf
9. Smith, G. et al. Knoxville Regional Transportation Planning Organization (July 2009), *Complete Streets Design Guidelines*, http://www.knoxtrans.org/plans/complete_streets/guidelines.pdf
10. Krag, T. Aalborg University, Denmark, paper (2002), *Commerce and Bicycles*
11. Tan, C.H. Federal Highway Administration, FHWA-HRT-11-006. Vol. 75, No. 2. (September/October 2011), "Going on a Road Diet". *Public Roads*, http://www.fhwa.dot.gov/publications/publicroads/11septoct/05.cfm

HOW TO GET IT RIGHT

This four-lane road in Redondo Beach, Calif., is not pedestrian or bicycle friendly and the road's traffic volumes doesn't justify having four vehicle lanes.

A transformation like the one seen here increases safety, parking, pedestrian and bicycle access and helps to create a people-friendly sense of place.

The success of any tool lies in getting it right, and this is certainly true of road diets. Try the following:

■ Engage the public

Road diets are a new concept in many communities. Involve the public as soon as possible during the discussions and planning to minimize any anxiety about the unknowns and to give residents ownership of the road diet goals.

■ Embrace a public process and build support

Develop an education and awareness campaign prior to implementation, and reach out broadly to community members, elected officials and municipal leaders. Government officials may need to see public support before acting. Toward that end, advocates can share this fact sheet, talk to neighbors, build community support and then meet with decision makers, the media, experts and others to discuss the benefits of road diets. Agency staff can engage the public by hosting workshops to build public acceptance and understanding.

■ Start with a pilot project

Consider launching a pilot road diet in an area that has light traffic. This will give drivers a chance to get comfortable with the concept and allow municipal staff to document what works and what doesn't.

■ Target areas that are ripe for reinvestment

Locate a pilot project on a road that carries no more than 15,000 vehicles a day and that ideally serves a downtown neighborhood or historic district with potential for reinvestment and/or economic development.

■ Document the change

Before, during and after the project is built, observe and record what's happening. The information can make it easier to conduct future road diets at higher traffic counts. In addition to traffic flow monitoring, document any increases in walking, bicycling, transit use and retail activity.

■ Utilize clear signage

During and even after completing a road diet project continue to use signage and markings to highlight and explain any features that might be unfamiliar.

■ Design it well

There is no one-size-fits-all design for a road diet. Make sure what you create fits the traffic volume, the road's physical location and the community's shared goals.

12. Rosales, J. Parsons Brinckerhoff (July 2009), *Road Diet Handbook: Setting Trends for Livable Streets*, http://www.ite.org/emodules/scriptcontent/Orders/ProductDetail.cfm?pc=LP-670; and Walkable Streets (August 2003), *Economic Merits of Road Diets and Traffic Calming*, http://walkablestreets.wordpress.com/2003/08/17/economic-merits-of-road-diets-and-traffic-calming/
13. Qlkable Streets (August 2003), *Economic Merits of Road Diets and Traffic Calming*, http://walkablestreets.wordpress.com/2003/08/17/economic-merits-of-road-diets-and-traffic-calming
14. Burden, D., Lagerway, P., Walkable Communities, Inc. (March 1999), *Road Diets: Fixing the Big Roads*. http://www.walkable.org/assets/downloads/roaddiets.pdf

SUCCESS STORIES

Orlando, Florida: Edgewater Drive

A 1.5-mile section of Edgewater Drive in the College Park neighborhood of Orlando was put on a road diet in 2000, converting four lanes to two. The results: 34 percent fewer crashes and 68 percent fewer injuries. Speeds decreased by up to 10 percent. Property values increased 8 to 10 percent in residential areas and 1 to 2 percent for commercial areas. Travel times through the corridor sped up by 25 seconds even with an increase in traffic volume. There was a nearly 40 percent increase of on-street parking, and walking and bicycling rates rose by 56 and 48 percent, respectively.

Seattle, Washington: Stone Way North

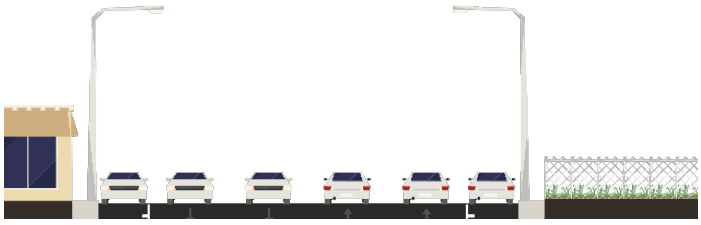
In 2008, a road diet was completed on a 1.2-mile section of Seattle's Stone Way North. The four-lane roadway carrying 13,000 vehicles per day was turned into a two-lane roadway with a center-turn lane, bicycle lanes and parking on both sides. Speeds on the road decreased, but drivers did not divert to other areas in search of alternate routes. Two years of crash data showed an overall decrease of 14 percent, injury crashes dropped by 33 percent and angle crashes dropped by 56 percent. Bicycle volume increased 35 percent (to almost 15 percent of the peak hour traffic volume), yet the bicycle collision rate showed no increase. Pedestrian collisions decreased 80 percent.

Athens, Georgia: Baxter Street

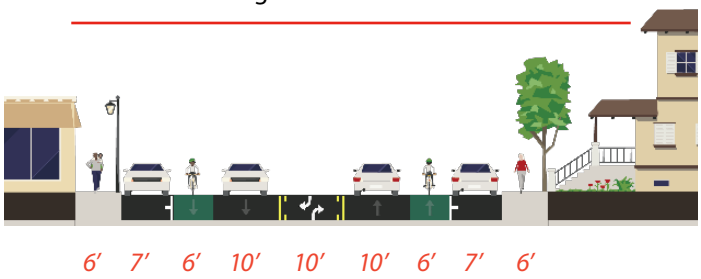
A road diet conversion on an arterial with 20,000 vehicles daily resulted in crashes dropping 53 percent in general and 60 percent at unsignalized locations. Traffic diversion was less than 4 percent, and 47 percent of the road's users perceived the number of lanes and street width as being "just right." (One-third were unsure and 20 percent were unhappy.) Baxter Street was converted from four lanes to two with a center lane and bicycle lanes on both sides.

HOW IT WORKS

The most common type of road diet converts four lanes of traffic into three lanes consisting of two travel lanes and a center left-turn lane. The configuration opens up space for adding such features as bicycle lanes, on-street parking, pedestrian buffers and sidewalks.



BEFORE: This roadway is designed primarily for motor vehicles. Wide, multiple travel lanes encourage faster speeds. The likelihood of lane changes increases the risk of crashes.



AFTER: A road diet opens up space for bike lanes, wider sidewalks, landscaping and pedestrian-scale lighting, all of which increase a community's ability to attract new development along the roadway. Narrower, single travel lanes encourage moderate and slower speeds that reduce crash risks.

RESOURCES

1. **Los Angeles County Model Design Manual for Living Streets.** (2011) http://www.modelstreetdesignmanual.com/
2. **Road Diet Handbook: Setting Trends for Livable Streets.** Available for purchase from Institute for Transportation Engineers, http://bit.ly/RCo4sw
3. **"Rightsizing Streets."** Project for Public Spaces, http://www.pps.org/reference/rightsizing/
4. **The Safety and Operational Effects of Road Diet Conversion in Minnesota.** http://www.cmfclearinghouse.org/study_detail.cfm?stid=68
5. **Proven Safety Countermeasures.** http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.pdf
6. **Evaluation of Lane Reduction "Road Diet" Measures on Crashes**. Highway Safety Information System, http://www.fhwa.dot.gov/publications/research/safety/10053/10053.pdf
7. **"Moving Beyond the Automobile."** Streetfilms, road diet video featuring Dan Burden on Vimeo: http://vimeo.com/21903160

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Sidewalks

A LIVABILITY FACT SHEET

After driving, walking is the most popular means of travel in the United States, with 10 percent of all trips occurring by foot. Eight in 10 Americans prefer being in a community that offers sidewalks and good places to walk. Six in 10 prefer a neighborhood featuring a mix of houses, shops and services within an easy walk versus a neighborhood that requires a car for every errand.[1]

Studies have found that people who live in neighborhoods with sidewalks are 47 percent more likely to be active at least 39 minutes a day.[2]

Sidewalks play a vital role in community life. As conduits for pedestrian movement and access, they enhance connectivity and promote walking. As public spaces, sidewalks are the front steps to the community, activating streets socially and economically. Safe, accessible, well-maintained sidewalks are a fundamental community investment that enhances public health and maximizes social capital.[3]

Sidewalks increase foot traffic in neighborhood retail centers, delivering the customers that local shops and restaurants need in order to thrive. Retail properties with a Walk Score ranking of 80 out of 100 were valued 54 percent higher than properties with a Walk Score [4] of 20 and had an increase in net operating income of 42 percent for more walkable properties.[5]

Interest in sidewalks is so keen that they've become a factor in home prices. For example, in a scenario where two houses are nearly identical, the one with a five-foot-wide sidewalk and two street trees not only sells for $4,000 to $34,000 more but it also sells in less time.

A well-constructed walkway for a typical 50-foot-wide residential property might cost a builder $2,000, but it can return 15 times that investment in resale value. A 2009 report by CEOs for Cities found that just a one-point increase in a community's Walk Score would increase home values by $700 to $3,000.[6]

1. National Association of Realtors. (November 2013) National Community Preference Survey. http://www.realtor.org/articles/nar-2013-community-preference-survey
2. Sallis J., et al. "Neighborhood Environments and Physical Activity among Adults in 11 countries." *American Journal of Preventive Medicine*, Vol. 36, No.2
3. National Association of City Transportation Officials (NACTO). (October 2012) *Urban Street Design Guide* pp 24-25. http://www.nyc.gov/html/dot/downloads/pdf/2012-nacto-urban-street-design-guide.pdf
4. Walk Score® is an online logarithmic ranking system that determines the basic walkability of a residential or commercial property. Walk Score uses neighborhood factors such as distance to shops and schools to create a number between 0 and 100 that measures the walkability of any address http://www.walkscore.com

Good downtown sidewalks have enough room for people to walk, stop and talk, or even sit for a bit. This wide sidewalk in State College, Pa., is made of visually appealing paver stones. Care must be taken when installing paver and similar surfaces so wheelchairs and other wheeled devices can roll smoothly over them.

AARP® Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

"No one will use the sidewalk."

This might have been true in the past, but research published in 2012 by the Centers for Disease Control and Prevention[7] and in 2013 by the National Center for Safe Routes to School[8] shows that a growing number of people are walking, and that many are children and adults age 65 and older. People just need safe, convenient and pleasant places near their homes, schools and workplaces to make walking routine, says the CDC study.

"Americans prefer to drive."

Perhaps, or maybe they're driving so much because there are no sidewalks. Federal data on vehicle miles traveled and a recent national study show a decline in driving and car ownership during the 2000s in an overwhelming majority of metro areas. At the same time, the number of people commuting by bicycle and transit increased.[9] A 2002 survey by the Surface Transportation Policy Partnership found that 55 percent of Americans would prefer to walk more and drive less.[10]

"Trees will be destroyed."

Not necessarily. Sidewalks can be curved to avoid trees. In fact, protecting a tree is one of the few reasons for a sidewalk to deviate from a direct route.[11]

"The sidewalk will take land away from my front lawn."

Many homeowners don't realize how far from the curb their private property line actually extends. There's often enough of a public right-of-way easement in place to create a sidewalk without infringing on a property owner's land.[11]

"A sidewalk will bring people too close to my house."

There's little difference between what passersby can see from a sidewalk versus what they can already see from their cars or by walking along the edge of the road. Any nearness added by a sidewalk may be as little as a few feet.[11]

"Sidewalks increase crime."

Actually, increased pedestrian activity puts more eyes on the street and creates safety in numbers, which deters and reduces criminal activity.[12]

"Tax dollars are better spent on other needs."

Since sidewalks increase property values and tax revenues, they serve as an economic engine. Plus, sidewalk maintenance costs are real estate tax-deductible (IRS Publication 530). Sidewalks are also safety investments (by bringing more eyes and ears to the street) and an integral part of a balanced transportation budget. [11]

"I'll be liable if someone gets hurt on a sidewalk near my property."

It depends. Liability is determined by state and local law, but either government or private owner negligence concerning an "unreasonably safe" or "defective condition" (such as a wide crack or raised section) has to be proven in court in order to win a lawsuit.[13]

"Sidewalks ruin a rural neighborhood's character."

It's only in recent decades that sidewalks have been phased out of developments. There are many ways to build a sidewalk or path to match the design and feel of a community.

5. Pivo, G. and Fisher, J.D. (2010) *The Walkability Premium in Commercial Real Estate Investments*. University of Arizona and Benecki Center for Real Estate Studies, Indiana University. http://www.u.arizona.edu/~gpivo/Walkability%20Paper%208_4%20draft.pdf
6. Cortright, J. Impresa, Inc., CEOs for Cities. (August 2009) *Walking the Walk: How Walkability Raises Home Values in U.S. Cities*. http://www.ceosforcities.org/pagefiles/WalkingTheWalk_CEOsforCities.pdf
7. Centers for Disease Control and Prevention. (August 2012) *Vital Signs*. http://www.nmhc.org/files/ContentFiles/Brochures/Myth%20and%20Fact%20FINAL.pdf
8. National Center for Safe Routes to School. (October 2013) *Trends in Walking and Bicycling to School from 2007 – 2012*. http://saferoutesinfo.org/sites/default/files/Trends_in_Walking_and_Bicycling_to_School_from_2007_to_2012_FINAL.pdf
9. U.S. PIRG Educational Fund. (December 2013) *Transportation in Transition: A Look at Changing Travel Patterns in America's Biggest Cities*. http://www.uspirg.org/news/usp/study-shows-driving-decline-america%E2%80%99s-cities
10. Surface Transportation Policy Project, Belden Russonello & Stewart. (April 2003) *Americans' Attitudes Toward Walking and Creating Better Walking Communities*. http://www.transact.org/library/reports_pdfs/pedpoll.pdf.Whetmore. J.Z. "Retrofit Sidewalks." *Perils for Pedestrians Public Affairs Series* (November 2012) Retrieved March 3, 2014 http://www.pedestrians.org/retrofit/retrofit15.htm
11. Rails to Trails Conservancy, National Park Service. (January 1998) *Rail-trails and Safe Communities: The Experience on 372 Trails*. http://www.railstotrails.org/resources/documents/resource_docs/Safe%20Communities_F_lr.pdf
12. Berg, D. (N.D.) "Sidewalk Slip and Fall: Who is Liable?" NOLO. http://www.nolo.com/legal-encyclopedia/sidewalk-slip-fall-who-liable.html

HOW TO GET IT RIGHT

Smart sidewalk widths: five to seven feet in residential areas, eight to 12 feet in downtown settings.

Well-built sidewalks can last 25 years or more with little more than minimal care.

The success of any tool lies in getting it right, and that's true of sidewalk design and construction. Try the following:

■ Engage neighbors and the community

Expect some opposition and use this fact sheet to help make the case for the sidewalks. Mobilize like-minded people and work together as a neighborhood or community. Meet with your neighbors to raise awareness and address any resistance.

■ Make the sidewalk wide enough

Sidewalks are critical in downtown neighborhoods and busy retail areas, both of which have lots of people, destinations and potential conflicts with vehicles. In these areas it's important to install sidewalks that are wide enough to handle foot traffic and community features such as cafe seating, benches and other spots for socializing.

■ Use a site-appropriate design

Design the sidewalk to fit the setting. Even rural communities can benefit from a tastefully designed walkway. Make sure sidewalks are well-maintained and appealing, with safe and convenient street crossings and enough width to accommodate two or three people walking side by side. The ideal setback for a sidewalk is four to 10 feet from the roadway. Planter strips, trees and on-street parking can extend the buffer, increasing comfort and slowing traffic.

■ Prioritize high-use areas and connectivity

At the outset of a sidewalk construction program, prioritize where to build first by focusing on a quarter-mile circle around schools, parks, transit stops and key commercial destinations. Everything within that circle should be a priority for sidewalk construction. Be sure to map sidewalks so they're connected between the primary areas where people work, shop and play.

■ Consider driveways

In many neighborhoods and retail areas, driveways are full of both moving and parked cars. Since driveways interrupt a sidewalk's flow and safety, they should be kept to a minimum in commercial areas. Carefully plan the best way to treat sidewalks that will cross driveways, especially in high-use areas. Alleys are a good tool for separating people from traffic, especially in retail areas.

■ Build and maintain with municipal funds

Many communities require property owners to pay for and clear sidewalks (snow, ice, etc.). Since sidewalks are a public benefit, a better policy would be to install and maintain sidewalks with public funds.

13. Federal Highway Administration. (N.D.) *Pedestrian Safety Guide and Countermeasure Selection System.* http://www.pedbikesafe.org/PEDSAFE/resources_guidelines_sidwalkswalkways.cfm

SUCCESS STORIES

■ Decatur, Georgia: Citywide Sidewalk Program

Decatur has been dubbed the most walkable city in Georgia, with more than 60 miles of sidewalks in its 4.2 square miles. The ongoing, citywide sidewalk improvement program began in 2004 with a Health Impact Assessment and funding from annual appropriations by the Decatur City Commission. The program's goal is to have a sidewalk on at least one side of every street in town. More than four miles of new and replacement sidewalks had been built by Spring 2014.

■ Austin, Texas: Sidewalk Prioritization

The City of Austin has built almost 100 miles of new sidewalks since 2005 to encourage walking as a viable mode of transportation and to improve safety, accessibility and pedestrian mobility. Austin completed a detailed sidewalk inventory, documented current conditions, obtained public input on sidewalk needs and issues, and established city sidewalk priorities that were organized into a downloadable Sidewalk Prioritization Map. The city prioritizes compliance with the Americans with Disabilities Act, sidewalks that allow children to walk safely to school, a connected network of sidewalks, trails and bikeway, and sidewalks that serve bus stops. More than 300 bus stop sidewalks have been completed since 2011.

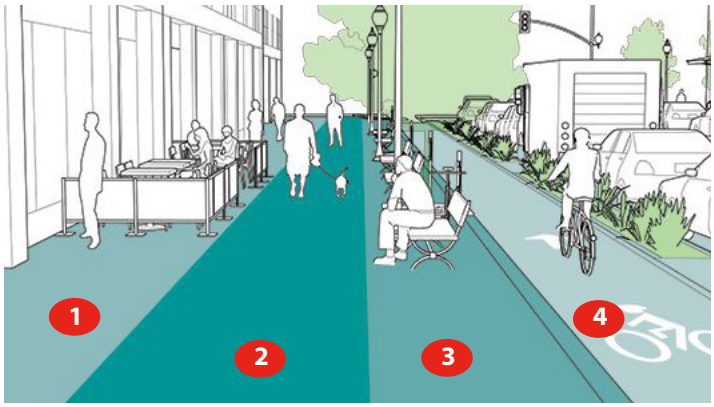
■ Calloway County, Kentucky: School Sidewalks

Walking or bicycling to school was prohibited in and around the small city of Murray because there were no sidewalks and it wasn't a safe way to travel. The local government offered to build sidewalks if the school system would change the policy. The effort resulted in 15,960 feet of sidewalks, including from the county middle school to a low-income housing area. Hundreds of students now regularly walk to school. "Every time I look down the street, there are people on the sidewalks, people pulling wagons, people walking their dogs," said a school district administrator.

HOW IT WORKS

Design guidelines recommend a minimum sidewalk cross section of five feet, exclusive of other amenities and large enough for at least two people to walk side by side. Here's a guide to the potential spaces alongside a property.

1. **Frontage Zone:** an extension of the building
2. **Pedestrian Through Zone:** safe and adequate place for walking, width of five to seven feet in residential areas, eight to 12 feet in downtown or commercial settings
3. **Street Furniture/Curb Zone:** plants, trees, benches, lighting and bike parking to provide a protective barrier from motorized traffic
4. **Enhancement/Buffer Zone:** curb extensions, parklets, parking, bike riding, bike e-racks and bike stations



National Association of City Transportation Officials, Urban Street Design Guide, *nacto.org*

RESOURCES

1. **Los Angeles County Model Design Manual for Living Streets.** (2011) http://www.modelstreetdesignmanual.com/
2. **Advanced Sidewalks and Streets Toolkit.** AARP. (2011) http://www.aarp.org/content/dam/aarp/livable-communities/plan/assessments/advanced-streets-and-sidewalks-toolkit-2011-aarp.pdf
3. **Costs for Pedestrian and Bicyclist Infrastructure Improvements**. Bushell, M., et al. UNC Highway Safety Research Center, Federal Highway Administration. (October 2013) http://katana.hsrc.unc.edu/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf
4. **Walkability, Real Estate and Public Health Data**, Walk Score Data Services, http://www.walkscore.com/professional/research.php
5. **Sidewalks and Streets Survey.** http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm
6. **Business Performance in Walkable Shopping Areas.** Active Living Research. (November 2009) http://activelivingresearch.org/files/BusinessPerformanceWalkableShoppingAreas_Nov2013.pdf
7. **Walk Score blog** at http://blog.walkscore.com/

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Street Trees

A LIVABILITY FACT SHEET

"The best time to plant a tree was 20 years ago. The second best time is now," says a wise Chinese proverb. In a neighborhood setting, street trees provide shade, safety, greenery, storm mitigation, energy savings, fresh air and a haven for songbirds and squirrels. Trees visually screen concrete and utility poles and quiet street noise.[1]

The U.S. Forest Service estimates that the presence of street trees increases adjacent home values by an average of $13,000.[2] That premium boosts a city's tax base and can help cover the operating costs of street tree maintenance. The National Main Street Center reports that a good tree canopy can increase retail sales by 12 cents on the dollar in large cities and 9 cents on the dollar in small ones.[3]

Trees are also good for our health. Vehicle exhaust increases ozone and causes asthma and other medical problems. Trees convert these harmful gasses into oxygen. In fact, a single urban street tree converts enough carbon monoxide and carbon dioxide into oxygen to meet the oxygen needs of two people for a full year.[4]

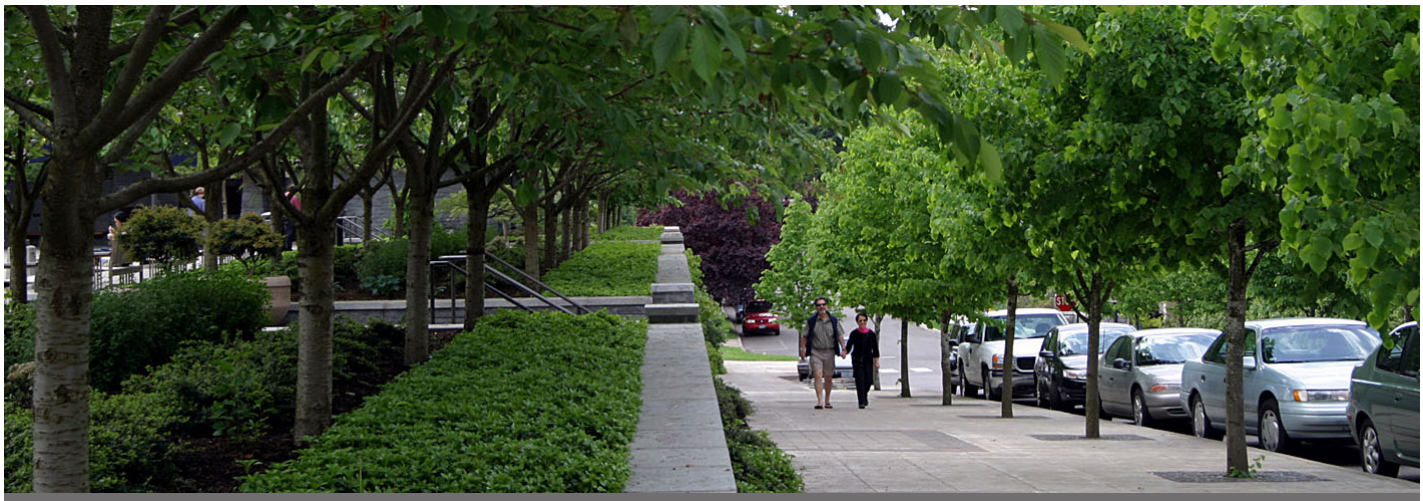
Trees planted in roadway divider strips or tree wells physically separate vehicles from pedestrians and help drivers distinguish the boundary between the street and adjacent areas where people walk. In addition, a well-developed tree canopy can reduce traffic speeds by 5 to 15 mph, which improves safety for all road users.[5]

Street trees reduce storm water runoff and flooding. (Here's an interesting fact: Trees absorb 30 percent of the precipitation through their leaves and another 30 percent through their roots.[5])

Pavement can cause temperatures to rise 3 to 7 degrees, which increases energy costs and the presence of harmful ozone and other gases. Tree shade can lower energy bills by up to 35 percent, especially when a street is shaded by a mature tree.[6]

Studies conducted in California found that tree shade can improve the lifespan of street surfaces by up to 60 percent. Since daily temperature fluctuations between heating and cooling are reduced, the damaging expansion and contraction of asphalt and concrete decline as well.[7]

1. Burden, D. Walkable Comunities, Inc., Glatting Jackson. (2006) *Urban Street Trees: 22 Benefits, Specific Applications*. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf
2. Donovan, G.H., Butry, D.T. (2009) "Trees in the city: Valuing street trees in Portland, Oregon". *Landscape and Urban Planning*. (2010) Vol. 94, pp 77–83 http://www.fs.fed.us/pnw/research/gcra/pdfs/pnw_2010_donovan001.pdf
3. Wolf, K. L. University of Washington. (August 2009) *Trees Mean Business: City Trees and the Retail Streetscape*. http://www.naturewithin.info/CityBiz/MainStreetNews_Aug09_Trees.pdf
4. American Forests. "Tree Facts". Retrieved March 4, 2014, https://www.americanforests.org/discover-forests/tree-facts/



Trees were planted as part of a downtown revitalization project in suburban Lake Oswego, Ore., that included sidewalks, new lighting, art installations, a pedestrian plaza, water fountain and traffic circle.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

■ "Street trees are dangerous."

Studies document that motorists respond to vertical walls of greenery by driving more slowly, which makes pedestrians and motorists safer.[8] Street safety comparisons show a reduction of run-off-the-road crashes and overall crash severity when stretches of a road with street trees are compared with similar segments that have no trees.

Trees also buffer pedestrians from moving vehicles. One Texas study found a 46 percent decrease in crash rates across urban arterial and highway sites after landscape improvements were installed.[9] The presence of trees in a suburban landscape reduced the cruising speed of drivers by an average of 3 mph.[10]

■ "Planting a tree anywhere produces the same health benefits."

U.S. Forest Service research suggests that urban trees may be 10 times as effective as forest trees for lowering carbon dioxide. Urban pollutants such as ozone, chlorine, fluorine, peroxyacetylnitrate and sulphur dioxide are all absorbed by trees.[11]

■ "Trees are expensive."

For a planting and three-year maintenance cost of $250 to $600, a single street tree returns more than $90,000 of direct benefits, not even including the aesthetic, social and natural benefits provided during the tree's lifetime. A well-planted and cared-for tree can thrive for 60 years or more.[12] The real estate premium from street trees boosts a city's tax base and can cover the operating costs of street tree maintenance.

For instance, New York City's 2006 tree census found that its 592,130 street trees provided an estimated $122 million in benefits annually. A goal of the city's 2007 PlaNYC initiative is to plant another 220,000 street trees by 2017.[13]

Washington, D.C., estimates the benefit of its street trees at $10.7 million annually.[14] A University of California at Davis study found that 20 percent shade on a street improves pavement conditions by 11 percent, which provides a 60 percent resurfacing savings over 30 years.[15] When streets have no shade, the sun's heat breaks down the paving binder and produces more heating and shrinking, which wears out the pavement. Shade increases pavement life by up to 60 percent, far offsetting the cost of tree maintainance[16] and the occasional cost of repairing damage caused by tree root growth.

■ "Trees are the cause of damage by storms."

Proper selection, spacing and trimming of trees, along with well-planned utilities, will reduce the impact of major storms. A line of mature trees, carefully chosen and planted, provides protection from fragile or isolated trees that fall.[17]

■ "Trees create a mess."

Trees can be selected that produce minimal autumn leaf droppings and other annoyances. (However, municipal policies should include procedures for efficient leaf removal.) Some species of trees attract songbirds, which can be a pleasant addition to an area. Although rare, some trees can attract such large congregations of birds that they become an annoyance. Thoughtful tree selection and management can limit specific bird populations or keep large groupings away.[17]

5. Burden, D. Walkable Comunities, Inc., Glatting Jackson. (2006) *Urban Street Trees: 22 Benefits, Specific Applications*. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf
6. Dumbaugh, Eric (2005) "Safe streets, livable streets." *Journal of the American Planning Association,* Vol. 71, No. 3, pp 283–300
7. Burden, D. Walkable Comunities, Inc., Glatting Jackson. (2006) *Urban Street Trees: 22 Benefits, Specific Applications*. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf
8. University of Washington, College of Forest Resources. *Urban Forest Values: Economic Benefits of Trees in Cities.* Rep. Center for Human Horticulture, 1998. Web: http://www.naturewithin.info/Policy/EconBens-FS3.pdf
9. Mok, J., Landphair, H., Naderi, J.R. (2006) "Landscape Improvement Impacts on Roadside Safety in Texas." *Landscape and Urban Planning*, Vol. 78, No. 3, pp 263-274. http://www.naturewithin.info/Roadside/RdsdSftyTexas_L&UP.pdf
10. Naderi, J. R., et al. (2008) "The Street Effect and Driver Safety." *ITE Journal on the Web.* http://www.walkable.org/assets/downloads/StreetTreeEffectandDriverSafety_ITEfeb08_.pdf
11. U.S. Forest Service. "Values of Urban Trees." Retrieved June 5, 2014: http://www.na.fs.fed.us/spfo/pubs/uf/techguide/values.htm
12. Burden, D. Walkable Communities, Inc., Glatting Jackson. (2006) *Urban Street Trees: 22 Benefits, Specific Applications*. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf
13. New York City Department of Parks and Recreation. "Trees Count! Street Tree Census". Retrieved March 4, 2014 http://www.nycgovparks.org/trees/tree-census/2005-2006
14. Alliance for Community Trees. (August 2011) *Benefits of Trees and Urban Forests: A Research List*. http://www.actrees.org/files/Research/benefits_of_trees.pdf

HOW TO GET IT RIGHT

A tree canopy provides beauty and shade in Fargo, N.D.

Tree wells add greenery in Valencia Town Center, Calif.

The success of any tool lies in getting it right, and this is true of street trees. Try the following:

■ Engage the public and build support

Due to the many misperceptions about street trees, it's important to involve the public at the earliest possible point of discussions in order to minimize anxiety about the unknowns and give citizens ownership of the goals. Print this fact sheet, talk to neighbors, build community support and then meet with decision makers, news outlets, experts and others to discuss the benefits of street trees.

■ Choose the right trees

There are street tree varieties for all climate zones, including semi-arid and arid conditions and even mountain communities above 9,000 feet. The proper selection and planting of trees in boxes reduces sidewalk repair costs and potential damage to utilities in urban neighborhoods.

■ Place trees correctly

When properly positioned and maintained, a backdrop of street trees can draw a motorist's eye to traffic signals and signs. However, the trees must be carefully positioned to allow adequate sight lines at intersections and driveways. Street trees should be placed 15 to 30 feet apart, or as far apart as 50 feet apart in urban locations. Trees should also be spaced to allow for illumination from street lights and so not to interfere with above- or below-ground utility lines.

■ Maintain trees properly

Tree maintenance is an added cost but one that is more than offset by the positive impact trees have on a community's tax base. It is important to properly maintain trees, including repairing occasional sidewalk damage from growing tree roots. It's also important to keep the majority of leaves cleared from the street since fallen leaves can clog drains during storms. In some climates piles of leaves that are left unattended over time can produce airborne spores that cause problems for allergy sufferers.

■ Plant in tree wells if sidewalk space is limited

If there's insufficient space for trees alongside a sidewalk, use a tree well instead. (See the photo at top.) Depending on the amount of parking needed, desired visual pattern and tree density, wells can be placed 40 to 60 feet apart, which allows two to four parking spaces in between. The wells must be wide enough to prevent vehicles from backing into trees.

15. McPherson, E.G. and Simpson, J.R. (2001) Davis, CA: USDA Forest Service, Pacific Southwest Research Station, Center for Urban Forest Research. *Effects of California's urban forests on energy use and potential savings from large-scale tree planting*
16. McPherson, G., Muchnick, J. (2005) "Effects of Street Tree Shade on Asphalt and Concrete Pavement Performance." *Journal of Arboriculture*, Vol. 31, No. 6, pp 303-310. http://www.fs.fed.us/psw/publications/mcpherson/psw_2005_mcpherson001_joa_1105.pdf
17. Burden, D., Walkable Comunities, Inc., Glatting Jackson. (2006) *Urban Street Trees: 22 Benefits, Specific Applications*. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf

SUCCESS STORIES

Shreveport, Louisiana: NeighborWoods

Despite Shreveport's location in a wooded part of the state, many community members were unaware of the benefits and value of a good tree canopy. Compounded by sustained tornado and ice storm damage in the years 2010 to 2013, and severe droughts during the summers of 1999 to 2005, many neighborhoods were practically devoid of trees. Help came from the nonprofit organization Shreveport Green and their work with NeighborWoods, a national program dedicated to reforesting city greenspaces. Beginning in 2006 student-led volunteers planted more than 20,000 trees in Shreveport, with a particular focus on three at-risk neighborhoods that had moderate to severe crime rates and a lack of community cohesion. By increasing the canopy cover, Shreveport Green offered residents a cooler and more attractive environment, which encouraged them to mingle outside and positively interact with their neighbors. The effort produced a cost benefit to Shreveport of $7.28 for every dollar spent.

Charlotte, North Carolina: Stately Trees

In 1985 the Charlotte planned major renovations of downtown thoroughfares, including 10 blocks of Tryon Street and two blocks of Trade Street. Since the city wanted large stately trees in its downtown area, a suspended precast concrete pavement system was installed, supported by earthen trench sidewalks and topped with non-permeable pavers. A total of 170 willow oak trees were planted and by 2009 they had grown to an average height of 44 feet, which resulted in a 10 percent reduction in peak storm flows to the city's storm water system. Once famous for cotton mills and gold mines, Charlotte is now known for its natural beauty and spectacular canopy of trees.

WHY IT WORKS

THE VALUE OF Urban Forests

urban forest = the trees, plants and natural resources within a town or city

12-1/2 trees can intercept an Olympic-sized swimming pool worth of stormwater annually.

Trees in urban forests support 60,000 California jobs annually.

177 million trees shading homes and buildings reduce air conditioning energy use by 6.4 billion kilowatt hours. (It takes 73 100-megawatt power plants to produce that much energy.)

Homes, goods and services sell for 12 percent more in communities with trees than in those without trees.

Source: California ReLEAF (*californiareleaf.org/whytrees*)

RESOURCES

1. **Safe Streets, Livable Streets**. Eric Dumbaugh. *Journal of the American Planning Association,* Vol. 71, No. 3, Summer 2005
2. **22 Benefits of Urban Street Trees**. Dan Burden. http://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf
3. **Benefits of Trees and Urban Forests: A Research List**. Alliance for Community Trees. (August 2011) http://www.actrees.org/files/Research/benefits_of_trees.pdf
4. **Talking Trees**. (November 2006) Local Governments for Sustainability. http://www.milliontreesnyc.org/downloads/pdf/talking_trees_urban_forestry_toolkit.pdf
5. **Stormwater to Street Trees**. U.S. Environmental Protection Agency Office of Wetlands, Oceans and Watersheds Nonpoint Source Control Branch. (September 2013) Washington, D.C. EPA 841-B-13-001
6. **Street Trees and Intersection Safety.** Institute of Urban & Regional Development, University of California, Berkeley (2006) http://www.uctc.net/papers/768.pdf

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

Traffic Calming

A LIVABILITY FACT SHEET

Since the advent of the automobile, most streets in the U.S. have been designed primarily for cars — fast-moving cars. Streets and parking now take up 25 to 50 percent of all public space in cities.[1]

Unfortunately, roadways designed to move traffic at high speeds undermine the historic functions of streets to help people interact and get around, regardless of their mode of transit. Smarter transportation design moves traffic while keeping communities safe and connected.[2]

For instance, when vehicles traveling at 20 mph collide with pedestrians, fewer than 10 percent of those struck are killed, most injuries are minor and 30 percent suffer no injuries at all. However, when a vehicle is moving at 30 mph, 45 percent of pedestrians hit are killed and many are seriously injured; at 40 mph, more than 80 percent of the pedestrians are killed and all are severely injured.[3]

According to the 2014 "Dangerous by Design" report, our roads are especially hazardous for children, low-income people and older adults. Even though older adults are 13 percent of the U.S. population, they were 20 percent of pedestrian fatalities in 2011.[4]

Traffic calming is a system of design and management strategies that include narrowed roads, modern roundabouts, chicanes (intentionally added turns in the road), median islands, speed humps, diverters, speed tables and other engineering tools or interventions.[5] These measures are used with the intent of slowing motor-vehicle traffic, often without reducing overall traffic volumes. The efforts increase safety and create a balanced urban environment for all users, including pedestrians and bicyclists.[6]

Another benefit of traffic calming is that it can give a street a transformative sense of place, thus boosting social interactions, housing and retail businesses.[7] The changes help reduce pollution, noise and even crime,[8,9] as it has in communities including Dayton, Ohio, where speed reductions and the closing of streets and alleys to motor vehicles lowered violent crime by 50 percent.[10]

1. Pedestrian Federation of America. *Walk Tall: A Citizen's Guide to Walkable Communities*. Emmaus, Pennsylvania, Rodale Press. 1995
2. Project for Public Spaces. "Levels of Service and Travel Projections: The Wrong Tools for Planning Our Streets?"http://bit.ly/1uncyj3
3. UK Department of Transportation. (London, 1987) *Killing Speed and Saving Lives*
4. National Complete Streets Coalition. *Dangerous by Design 2014 Report. http://www.aarp.org/livable-communities/info-2014/dangerous-by-design.html*

Soon after West Palm Beach , Fla., removed 17 travel lanes in its downtown, new street life and investment followed, revitalizing this town center. Crime rates also dropped due to traffic calming.

AARP Real Possibilities

Walkable and Livable Communities Institute

MYTH-BUSTING!

"Traffic calming will divert cars onto my street."

Drivers tend to use primary streets and roads because they provide the most direct and efficient route to their destinations. Traffic-calmed streets, when designed with certain measures that slow traffic without causing much diversion, can have little to no effect on overall traffic volume, except perhaps during the construction period. The Institute of Transportation Engineers recommends using traffic circles and long speed humps instead of street closures and standard speed humps as a way to avoid diversion.[11]

"Traffic calming creates traffic jams."

On roads with less than 20,000 vehicles per day, traffic calming techniques such as "road diets"[12] have minimal or even positive effects on vehicle capacity. One reason: Left-turning vehicles are moved into a center lane. When necessary, bike lanes and center turn lanes can be used for police enforcement and stranded vehicles in order to avoid disrupting the normal traffic flow.[13]

"Traffic calming is bad for transit."

Transit conflicts can be avoided with good planning, such as incorporating a center lane so motorists can swerve around stopped buses or by adding side pull-out bays for buses.

"Traffic calming slows down emergency responders."

By not using short speed humps and stop signs, a traffic-calmed street, even with offset speed tables, can accommodate emergency vehicles without reducing emergency response times.[14] Drivers can use bicycle lanes to move out of the way, and a center turn lane can be used by responders to efficiently pass other vehicles.

"People don't like traffic calming measures."

Neighborhood traffic calming projects have gained broad acceptance and support in cities that use an effective and meaningful public engagement process. The redesign of Brooklyn's Prospect Park West reduced vehicle speeds, increased bicycle use and improved the street's overall capacity, all while maintaining motorized vehicle travel times. The project provoked a small group of residents in opposition, but the city, the community board and 70 percent of residents supported the project[15] and even succeeded in getting the speed limit reduced even further, to 25 mph.[16]

"Traffic calming measures are being reversed."

Traffic calming is proving to be effective, safe and popular. With the exception of short speed humps, of the more than 20,000 road segments calmed nationwide few have been converted back to their original configuration.

"The city or community will be held liable for damages."

Communities seeking traffic calming measures often hear that legal liability is a concern. Nationwide, thousands of traffic calming measures have been installed since the 1970s, with only six liability verdicts. Compared to the steady stream of liability cases that cities face from simple road maintenance and construction projects, traffic calming has a minimal liability risk.[17] On the major plus side, slower traffic speeds reduce the chance of crashes, and the damage, injuries and fatalies that can result.[18]

5. Institute for Transportation Engineers. "Traffic Calming Library." Retrieved June 5, 2014 from http://www.ite.org/traffic/default.asp
6. Federal Highway Administration. *FHWA Course on Bicycle and Pedestrian Transportation*, Lesson 11, Traffic Calming. http://safety.fhwa.dot.gov/ped_bike/univcourse/pdf/swless11.pdf
7. Project for Public Spaces, Inc. (2008) *Streets and Places: Using Streets to Rebuild Communities*. http://www.pps.org/pdf/bookstore/Using_Streets_to_Rebuild_Communities.pdf
8. Lockwood, I.M., Stillings, T., City of West Palm Beach. *Traffic Calming for Crime Reducation & Neighborhood Revitalization*. http://bit.ly/1un85wU
9. Pedestrian and Bicycle Information Center. *Traffic Calming and Crime Prevention*. http://katana.hsrc.unc.edu/cms/downloads/ENG
10. TrafficCalmingandCrimePrevention.pdf
11. Ewing, R., Kooshian, C.. Institute of Transportation Engineers. *Traffic Calming Measures: What, Why, Where, and How*. http://www.ite.org/traffic/documents/CCA98A12.pdf
12. Burden, D. Walkable 101: Road Diets. (2012) Video. http://vimeo.com/35268247
13. MDOT. http://www.michigan.gov/documents/mdot/MDOT_Research_Report_RC1555_Appendices_A-E_376150_7.pdf
14. Batsdon, S. ITE Technical Conference. (March 2004) *Offset Speed Tables for Reduced Emergency Response Delay*. Paper. http://nacto.org/docs/usdg/offset_speed_tables_for_reduced_emergency_response_delay_batson.pdf
15. New York City Department of Transportation. Retrieved February 25, 2014 from http://www.nyc.gov/html/dot/html/bicyclists/prospectparkwest.shtml
16. Goodyear, S. (February 2014) New York Fights to Set Its Own Speed. *The Atlantic Cities*. http://www.theatlanticcities.com/commute/2014/02/new-york-fights-set-its-own-speed-limits/8277/

HOW TO GET IT RIGHT

Atlanta's Cascade Avenue, with up to 17,900 vehicles per day, is a challenge to walk, bicycle or shop.

Cascade Avenue after traffic calming could inspire redevelopment that tranforms the neighborhood.

The success of any tool requires using it right, and this is certainly true of traffic calming. (Perhaps "street repurposing" is a more accurate term?) Try the following:

■ Embrace a public process and build support

Develop an education and awareness campaign prior to implementation and reach out to community members, elected officials and municipal leaders. Elected leaders and agency staff may need to see public support first, to inspire their approval and help navigate the implementation. Community advocates can print this fact sheet, talk to neighbors, build community support and then meet with decision makers, news outlets, experts and others to discuss the benefits of traffic calming. Agency staff can engage the public in a meaningful process, such as by hosting charrettes or interactive design workshops to build public acceptance and understanding.

■ Start with a pilot project

Consider doing a pilot project first in an area with light traffic to give drivers a chance to get comfortable with the concept and to allow municipal staff to document what works and what doesn't. Temporary and portable measures, such as paint, signage and parking changes, can allow for low cost traffic calming that is also easily removed or converted into permanent structures once the project is shown to be successful.

■ Incorporate traffic calming into larger efforts

Traffic calming is best done in conjunction with another project, such as development, revitalization, utility or maintenance work; a downtown, corridor or transit plan or a new street design. That way the traffic-calming element can simply be incorporated into the larger project's processes.

■ Traffic calming should benefit transit

Transit can help provide the convenient and safe connections that improve public spaces and enhance walking and bicycling trips, but slowing down traffic could interfere with transit functions. Because of that it's necessary to design and coordinate traffic-calming measures to ensure efficient transit movements.

■ Embrace proactive design and use target speeds, not operating speeds

A proactive approach uses design elements to affect behavior and lower speeds. This may be the single most consequential intervention in reducing pedestrian injury and fatality.[19]

17. Transportation Alternatives, New York City. http://www.transalt.org/files/campaigns/nsn/debunking.html.
18. National Association of City Transportation Officials (NACTO; October 2012). *Urban Street Design Guide.* http://www.nyc.gov/html/dot/downloads/pdf/2012-nacto-urban-street-design-guide.pdf
19. National Association of City Transportation Officials (NACTO; October 2012). *Urban Street Design Guide.* Page 24-25. http://www.nyc.gov/html/dot/downloads/pdf/2012-nacto-urban-street-design-guide.pdf

SUCCESS STORIES

Hendersonville, North Carolina: Main Street

Main Street is a former state highway that was narrowed to two traffic lanes with widened sidewalks to make downtown more pedestrian-friendly, especially for the one out of four town residents who are retired. Alternating blocks of diagonal and parallel parking were added to create a serpentine traffic flow that tames traffic even more. After the highway was rerouted to adjacent streets and the Main Street improvements were completed, Hendersonville's retail vacancies dropped from 14 to one.

San Francisco, California: Octavia Boulevard

After the 1989 Loma Prieta earthquake rendered the freeway through the Hayes Valley neighborhood unsafe for driving, residents and advocates called for the road's removal. The city built Octavia Boulevard in its place during the 1992 recession with a median, four through lanes, boulevard-style parking lanes, tree-lined walkways, side lanes for local traffic and parking and aesthetic details including special light fixtures. A new park was developed, housing increased, home values went up, employment rose 23 percent, transit trips increased 75 percent, gridlock never materialized and new restaurants and retail shops opened for business.

West Palm Beach, Florida: Downtown

Traffic calming was initially used as a response to resident complaints about speeding and cut-through motor vehicle traffic. The city found that driver behavior improved, which led to an increase of pedestrians, cyclists and skaters, which led to a substantial crime reduction. Residents and businesses invested more than $300 million in renovations and improvements, increasing property values and business receipts, neighborhood pride and tourism.

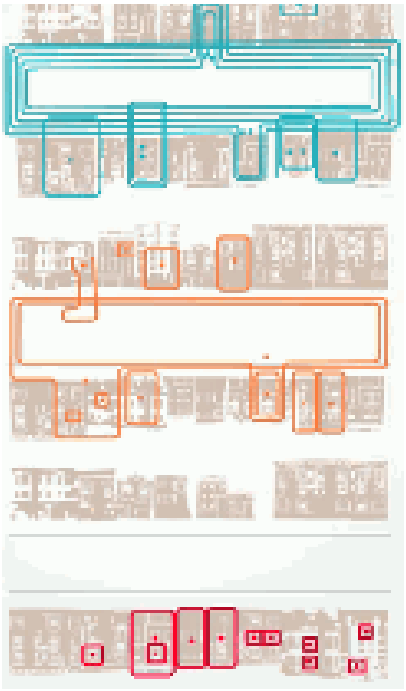
HOW IT WORKS

In 1981, researcher Donald Appleyard studied traffic on three San Francisco streets and discovered that as traffic increases, the area people consider to be their "territory" shrinks. The image below depicts the relationship between traffic volumes and how connected residents felt to their neighbors.

LIGHT TRAFFIC
2,000 vehicles per day
3 friends per person
6.3 acquaintances

MEDIUM TRAFFIC
8,000 vehicles per day
1.3 friends per person
4.1 acquaintances

HEAVY TRAFFIC
16,000 vehicles per day
0.9 friends per person
3.1 acquaintances



RESOURCES

1. **Livable Streets.** Appleyard, D. University of California Berkeley. (1981)
2. **Streets and Sidewalks, People and Cars: Citizens' Guide to Traffic Calming.** Local Government Commission. (2007). http://www.lgc.org/streets_and_sidewalks
3. **Streets and Places: Using Streets to Rebuild Communities.** Project for Public Spaces, Inc. (2008) http://www.pps.org/pdf/bookstore/Using_Streets_to_Rebuild_Communities.pdf
4. **Traffic Calming 101: the Traffic Calming Toolbox.** Project for Public Spaces. http://www.pps.org/reference/livememtraffic/#THE%20TRAFFIC%20CALMING%20TOOLBOX
5. **Urban Street Design Guide.** National Association of City Transportation Officials (NACTO; October 2012). http://www.nyc.gov/html/dot/downloads/pdf/2012-nacto-urban-street-design-guide.pdf
6. **Street Design Manual.** New York City Department of Transportation. (2013) http://www.nyc.gov/html/dot/html/pedestrians/streetdesignmanual.shtml#download
7. **Traffic Calming: State of the Practice.** (1999) Institue of Transportation Engineers/ Federal Highway Administration. http://www.ite.org/traffic/tcstate.asp#tcsop
8. **Traffic Calming: Roadway Design to Reduce Traffic Speeds and Volumes.** (February 2012) Victoria Transport Policy Institute. http://www.vtpi.org/tdm/tdm4.htm

AARP LIVABLE COMMUNITIES

Mail 601 E Street NW, Washington, DC 20049
Email livable@aarp.org
Online aarp.org/livable

WALKABLE AND LIVABLE COMMUNITIES INSTITUTE

Mail 2023 E. Sims Way #121, Port Townsend, WA 98368
Email community@walklive.org
Online walklive.org

NOTES

aarp.org/livable

LIVABLE COMMUNITIES

Great Places for All Ages℠

AARP® Real Possibilities

aarp.org/livability-factsheets

aarp.org/livable