





## 2 DESIGN ESSENTIALS FOR ACTIVE LIVING

To help you start thinking about active living design, this chapter highlights some of the guiding principles that encourage community residents to adopt an active living lifestyle. These principles arise from three sources: 1) accepted “best practices” in design; 2) recommendations from respected experts in walkability, bikeability, and transportation planning; and 3) the experiences of people who walk, bike, run, dog-walk, commute, and shop in Michigan and elsewhere (Burden, 2002; Bicycle Federation of America Campaign to Make America Walkable, 1998; Hirschhorn and Souza, 2001; Ewing, 1999a, 1999b).

At the end of this chapter, you will see how the guiding principles work in different settings.

### The Guiding Principles

#### Transportation Begins and Ends with Walking

For virtually every trip—from home to the store, from the car to the office, from the office to a lunch date—at least part of the trip is on foot. For those who are able, walking is common to all forms of travel. Unfortunately, the walking part of the trip is often overlooked. As a good example, consider the parking lot at an average shopping center. The trip from your car to the front door can be unnerving. You have to dodge speeding vehicles cutting across parking lanes, hop out of the way of vehicles suddenly backing out of spaces, and dash to the front door to avoid inclement weather. No wonder people hunt for the closest parking spot!

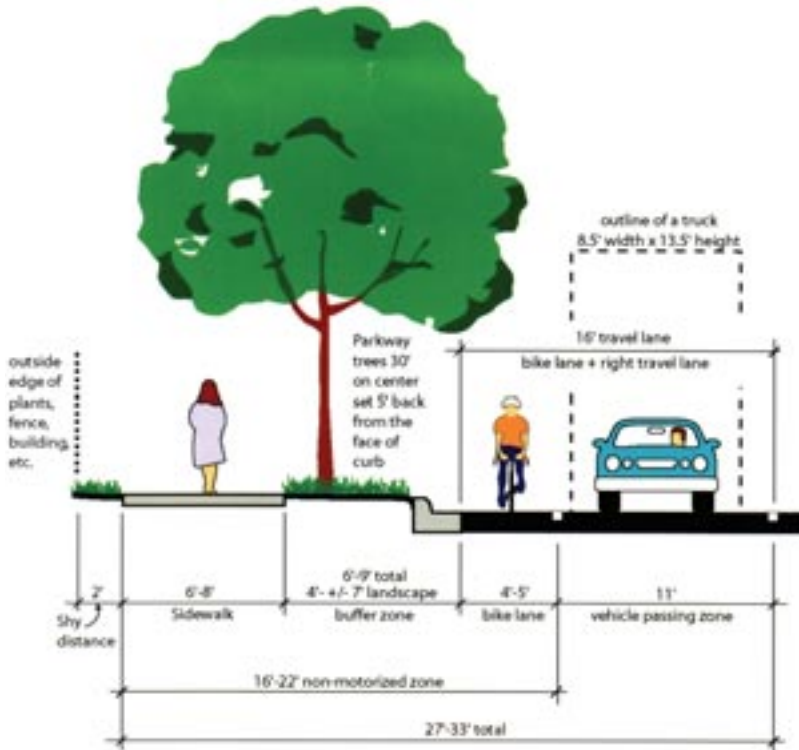
#### Plan for Your Most Vulnerable Populations

Regular physical activity should be a lifelong goal for everyone, but many cities and towns have hurdles that limit activity for some people.



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**A complete street.** Drawing credit: Norm Cox

When planning for facilities and infrastructure, keep in mind the needs of children as well as elderly and disabled residents. They tend to move more slowly and be less visible to other people in public. Work with your local planner to survey these groups, or speak with their advocacy organizations. Ensure that sidewalks, street designs, public transit stops, public spaces, and parks and recreation facilities meet their needs. When a community's design works for the most vulnerable residents, it works for everyone.

### Complete Your Streets

Make sure that streets work for all users, not just for those in vehicles. A *complete street* fully accommodates pedestrians by providing safe and accessible sidewalks, well-marked crosswalks,

street lighting for safety, and tree shade for comfort. The street should employ design elements or traffic calming techniques that slow cars. For bicyclists, a complete street provides marked bike lanes or wide curb lanes, marked bicycle routes, and signs advising motorists of the presence of bicyclists. One way to figure out which streets need completing is to create a bicycle and pedestrian master plan. Good examples can be found in "Active Living and Recreation Resources" near the end of this book; see the "Policies and Planning" section.

### Create a Transportation Network with Many Connections

A robust transportation network links valued destinations through a variety of means and routes. Think of a spider web: a network with many connections, where threads of differing thickness represent different modes of transportation. More connections mean shorter distances between the places you want to go and thus less time to get to your destination. A network offering multiple modes of transportation also can make it easier to get places. For example, to bike to a friend's house you could ride on streets with bike lanes, then hop onto a shared-use path, and finally get on a bus equipped with a bike rack.



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## Ensure Equitable Access to Opportunities for Activity

Active living design provides people of all means with close and easy access to areas that enhance physical activity, such as parks and trails. During planning, consider the proposed placement of such areas. If a trail can be reached only via busy roads or if the park with play equipment is too far away, a parent might hesitate to push a baby in a stroller to get there. Make facilities available to all groups in society. A family without a car may not have the means to reach even the nearest park. Older, built-up neighborhoods, for instance, may have less open space or fewer parks than newer ones—although they may have better sidewalks! Local governments should list their physical activity assets, determine areas with deficits, and take action, such as creating pocket parks or investing in sidewalks, to ensure walk- and bikeability for all.



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<http://www.iStockphoto.com>

## Build with Safety and Security in Mind

Physical activity has two precursors: safety and security. *Safety* means that when people window-shop on the street or sprint up a hill on a shared-use path, they feel confident that they will come to no physical harm. Good design and maintenance are essential to feeling safe. For example, sidewalks need to

be well lit and buffered from vehicles on roadways by planted strips, street trees, or parking. Walking and biking surfaces need to be level and clear of debris. Low-hanging branches that narrow usable space, threaten eyes, and obstruct visibility must be removed. Intersections should be designed to prioritize pedestrian safety and reduce conflicts with motor vehicles.

*Security* means that pedestrians and bicyclists can move without fear of crime or some other threat, such as an unleashed dog. Security is strongly linked to people's perception of the environment. While crime might not be an actual problem, the fear of crime deters physical activity. Again, design is critical to feeling secure. Try to maximize the number of "eyes on the street" (Jacobs, 1961). The more people you have on the street or watching the street, the stronger your feeling of security even if surrounded by strangers. To enhance security, businesses and homes should have doorways and windows oriented toward the street. In shopping areas, commercial buildings and parking

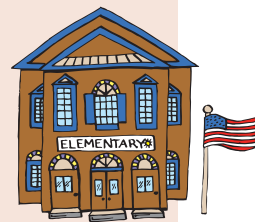


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## SCHOOL SITING

Neighborhood schools are vital to active living communities. Schools located within residential areas make it easier for students to walk and bike to class. Walking and biking paths are not usually part of the design plan for outlying schools, so there can be traffic and chaos around the school during arrival and dismissal times.

The trend of siting schools on the edge of town (or further) has received much scrutiny. Inexpensive land at the edge of town may seem like a good way to keep school costs down when deciding whether to preserve a neighborhood school or construct a new one elsewhere. However, the expenses associated with upgrading the streets and utilities, the extra time and energy costs for parents who choose to drive their kids to school, and the added costs of school busing are usually not calculated into the cost analysis.



While schools are exempt from local site plan review and zoning requirements, you can influence school siting decisions. The Michigan Land Use Institute published a report on school siting that explores the subject using Michigan cases (McClelland, 2004). A Safe Routes to School movement is growing across the state as local teams of school personnel, parents, students, and community leaders work together to improve the walking and biking routes around their schools, giving children the opportunity to be physically active at least twice daily (<http://www.saferoutesmichigan.org>).



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garages should have retail businesses on the first floor; encourage restaurants to have sidewalk cafes or verandahs. In residential districts, houses placed closer to narrowed streets can create a welcoming, secure neighborhood feeling.

### Embrace Downtowns, Density, and Mixed Use

Density is the critical ingredient of an exciting built environment. Density means there are enough people and attractive destinations close enough together to encourage enjoyable life on a street. Higher densities are a key trait of some of Michigan's most

attractive urban areas: the shopping areas of downtown Holland; the cafes, restaurants, and bars of Main Street, Ann Arbor; and the loft apartments, shops, and art galleries of Royal Oak. Market research has shown that people like density if it is "done right." In fact, densely developed walkable communities now constitute one of the highest value sectors of the real estate market.

How is density done right? One way is to mix land uses. This allows commercial spaces, such as retail shops, galleries, and restaurants, to mingle with residential dwelling units, such as loft apartments and townhouses, and with public facilities and buildings, such as libraries and small parks. Land uses can be mixed both horizontally (existing side by side) and vertically (stacked on top of one another, such as a loft apartment above a coffee shop). Mixing land use encourages active living by bringing people's homes and work closer to the other places they want to go, then making it easier to walk or bike. To move toward an active living environment, think about how to increase the mixed use and density of your community.



Photo credit: John Pratt.

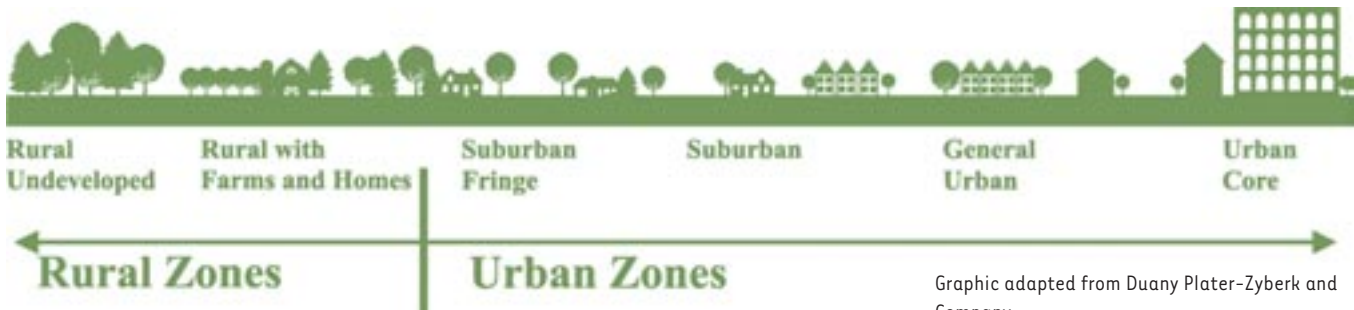
### Remember That Aesthetics Matter

Physical activity is positively associated with pleasing environments. While you might think that aesthetics are in the eye of the beholder, the research literature shows a lot of agreement on what people find attractive and what motivates them to get outside and move. Quality buildings, streets, and landscaping—trees, shrubs, flowers, and other plantings—make a community a more appealing place to be active (Kaplan and Kaplan, 1989; Kaplan et al., 1998). Plants provide interest; they soften the appearance of hard surfaces and provide color, fragrance, and seasonal interest. Trees provide critical shade, reduce temperatures in urbanized areas, and help reduce carbon dioxide. They can also help separate pedestrians from motor vehicle traffic. Attractive and well-maintained homes, interesting buildings, fine public libraries, beautiful streetscapes, and public art create places that inspire people to be physically active (Brownson et al., 2001).

When advocating new design approaches in your community, don't dodge a discussion of aesthetics. Where do you like to visit and stroll? Where do

you not take out-of-town guests? Why? When you know the elements you like and dislike, you can develop a better active living environment. Form-based codes can also help communities create and maintain a pleasing local character (see the “Form-Based Codes” box in Chapter 7 on page 71).

## Applying the Principles



Graphic adapted from Duany Plater-Zyberk and Company.

No matter where you live, you can apply these active living principles to improve active living in your community. A first step is to classify your community according to its land-use and design characteristics. The diagram above can help you do this. The diagram shows common land uses and building types you might encounter in an extended walk from the least developed to the most developed area of a community. Take a minute now and identify the zone on the diagram that best depicts your community. Then read the following sections for recommendations specific to rural, suburban, and urban communities.

### Rural Communities

Research shows that rural residents are more likely than urban residents to be physically inactive and to suffer from related illnesses (Parks et al., 2003). This isn’t surprising if you think about how some rural areas have developed. Typical rural homes in Michigan exist on two-lane county highways. These roads carry fast traffic and have minimal or no shoulders for safe use by pedestrians or bicyclists. Although many rural residents live on large parcels or near open space, the patchwork of private property makes it difficult to go for a nature walk without trespassing. Finally, a shift to highway commercial development—particularly big-box retail—has negatively affected many locally-owned businesses and town or village centers, which are often more walkable environments.

Rural communities can take several key steps to enhance possibilities for active living.

- Make roads more friendly to non-automotive users by providing wide shoulders on heavily traveled, paved county roads. An added benefit: Wide shoulders also reduce maintenance costs.
- When possible, locate new developments so they adjoin existing village centers or other residential areas.



Michigan’s rural areas host many beautiful and productive farms. Photo credit: © Mike P. Kelly, <http://www.iStockphoto.com>



This rural road provides a paved shoulder sufficiently wide for a bicyclist. Photo credit: MDOT

- Require new rural subdivisions to have sidewalks even if the streets have no curbs.
- Reduce motor vehicle traffic lane widths on paved roads to calm fast-moving traffic, and increase shoulder width to make room for bicyclists.
- Use cluster zoning that sets aside land as open space and groups homes on a portion of the property; allow mixed land uses in new developments.
- Develop trails, particularly shared-use trail networks, that link the rural area to other trails and destinations.
- Limit zoning for large-lot residential and highway commercial development.
- Protect large blocks of farmland and open space.



**This established neighborhood might be dubbed the "old urbanism." Houses are oriented to the street, sidewalks are provided and street trees and on-street parking slow drivers down.** Photo source: National Center for Bicycling and Walking



**Suburbs developed in recent decades often feature cul-de-sacs that calm traffic but limit connections between neighborhoods.** Photo credit: Image from the Metropolitan Design Image Bank. © Regents of the University of Minnesota. Used with permission. All rights reserved.

### Suburban Communities

Suburban areas encompass a wide spectrum of places. The suburbs built in the early part of the twentieth century, like Royal Oak and Ferndale, are dense environments with recognizable downtowns and a well-connected road network reflecting a traditional grid pattern. On the diagram, they are classified as suburban.

In contrast, many of the suburbs built after World War II, particularly those built from the 1970s into the 1990s, do not have these features. These communities represent the suburban fringe. They lack traditional downtowns—shopping areas are usually auto-oriented commercial strips running along major roads. The network of roads also suffers from poor connectivity; a driver can't easily get from one place to another through a variety of routes. Neighborhood road networks are frequently disrupted by cul-de-sacs, which were often developed to buffer residents from motor vehicle traffic generated by busy, wide (four or more lanes), and noisy arterials. Moreover, these communities are characterized by very strictly separated land uses. There are large, uniform residential areas in some places, often located miles from the nearest shopping, dining, or employment destinations. To buy the most basic goods—such as a loaf of bread or a roll of toilet paper—driving to a store is the only option. Finally, more recently developed suburbs tend to have fewer common public spaces, like public plazas or parks, which inspire people to congregate and be physically active.

The good news is that suburban communities can take many actions to make their built environment more amenable to physical activity. In fact, many communities have already embarked on this path by using some of the following ideas.

- Make arterial roads more walkable by installing sidewalks on both sides of the road and crosswalks every 600 feet (or about the length of a downtown city block). Build median refuge islands in very wide roads, and plant street trees to slow motor vehicle traffic.
- Implement "road diets" to accommodate bicyclists. Road diets narrow the width of motor vehicle traffic lanes by restriping roads

## BIG BOXES AND PHYSICAL ACTIVITY



**This protected and lit walkway provides a safe approach to the front door for all shoppers.**

Photo credit: Mark Fenton

In recent decades the emergence of “big-box” retail has provided a number of challenges to some communities. While people are most familiar with the impacts on local economies and environments, big boxes also have implications for active living. From this perspective, the key concerns are the scale of these stores, their site design, their location, and the effect these combined factors have on opportunities for physical activity.

Big-box stores cover a lot of land—an average supercenter, for instance, consumes 20 acres of land, most of it under pavement (Hunt and Ginder, 2005). In Michigan and elsewhere, most big-box stores are explicitly designed for customers arriving in cars. There is little or no expectation that someone might walk or bike to the store.

A few design changes can make these retail centers more friendly to pedestrians and bicyclists. Roads near big-box retail sites can have sidewalks and designated crosswalks. The building can be located at the street, with entrances available at the sidewalk and parking lots at the back. Parking lots can include islands with shade trees; sheltered, well-lit walkways can allow people to move safely from their cars to the entrances. Bike racks can be provided at all doors.

The size of parking lots can also be reduced. Many malls and shopping centers have been built anticipating only one day: the peak day in the retail year, the Friday after Thanksgiving. Awareness of the environmental costs of such overbuilding has led communities to adopt maximum parking standards that decrease the number of parking spaces to reflect more appropriate year-round usage. See “Action Step 4: Revise Your Regulations” in Chapter 7 on page 72 for more information. Also, the National Trust for Historic Preservation published a booklet that highlights best practices examples and has model ordinances from several communities (Beaumont, 1994).

and adding designated bike lanes.

- Develop village centers or centralized shopping areas by encouraging in-fill development (such as building a mixed-use retail/residential center on a vacant lot, parking area, or failing shopping center) or increasing the density of existing structures (through additional stories).
- Use public art, banners, landscaping, and distinctive street lighting to brand these village centers as desirable destinations.
- Allow and encourage mixed uses, in particular the development of areas that mix residential, commercial, and non-industrial employment uses. This is being done with both new and redevelopment projects.
- Enhance connectivity by building walking paths between subdivisions and through neighborhoods with numerous cul-de-sacs.
- Establish funding mechanisms to further develop common open spaces, such as parks.
- Collaborate with neighboring local government units to plan shared-use trail systems and greenways. (The development of the Macomb Orchard and Paint Creek Trails in Oakland and Macomb Counties offers a great example. Southeast Michigan is an acknowledged national leader in trail development!)

- Change design standards for new subdivisions. Communities are embracing the development of more compact, street-oriented residential areas, which are often called *traditional neighborhood design* or *New Urbanism*. Alternatively, use cluster zoning, which sets aside open space that can be used for shared-use trails.
- Support public transportation, particularly through mixed-use, transit-oriented development.



**Detroit is rediscovering its waterfront, with loft conversions and the creation of downtown living opportunities.** Photo credit: Downtown Detroit Partnership.

### Urban Communities

Urban communities were often developed with pedestrians in mind. These communities, particularly Michigan’s historic cities, were built in an era when land uses were mixed, downtowns were well developed, houses were oriented toward the street, front porches were ubiquitous, sidewalks and trees lined all streets, and street networks adhered to a grid pattern that enhances walkability.

This doesn’t mean that Michigan’s urban areas face no challenges in achieving active living objectives. Unfortunately, many of the advantages and amenities of cities have been undercut by neglect and disinvestment. Likewise, the industrial character of many cities affected how people viewed and developed key resources, particularly water resources. Some cities literally turned their backs to their rivers (which were being used as sewers). Laudably, many communities—from Detroit to Lansing to Grand Rapids—have rediscovered their rivers and are developing networks of parks, trails, plazas, and other public uses along them.

Urban communities can take many actions to encourage active living.

- Offer incentives to promote the redevelopment of vacant or abandoned urban land or buildings.
- Provide incentives for in-fill development in mixed-use zones, rather than developments at the outer edges of urban areas.
- Allow more mixing of uses in established neighborhood and commercial areas so that restaurants, stores, and loft-style apartments can share the same districts.
- Invest in infrastructure redevelopment and maintenance, particularly focused on sidewalks, parks, and bike lanes.
- Address perceptions of crime through enhanced street lighting, on-foot or bicycle police patrols, and greater support to neighborhood watch groups.
- Collaborate with neighboring local government units to plan inter-city and other shared-use trail systems and greenways. An outstanding example is the Downriver Linked Greenways Initiative running from Dearborn to Detroit. (See the Greenways Initiative of the Community Foundation for Southeast Michigan at <http://greenways.cfsem.org/>.)
- Rework roads to accommodate bicyclists by restriping roads to narrow lanes and putting marked bike paths on major roads and arterials. (Don’t say it can’t be done—in the city of Chicago, more

than 100 miles of arterials roads and another 200 miles of streets are being redesigned to accommodate bicyclists with bike lanes and share-the-road markings).

- Convert vacant urban land into productive and aesthetically pleasing uses like community gardens.
- Develop or improve public plazas, parks, and facilities such as municipal skating rinks or skate parks.
- Enhance publicity for ethnic shopping areas and distinct destinations such as downtown, and create a strong sense of place for those areas.
- Support the development of farmers' markets, street festivals, art and food fairs, sporting activities, and other public events.
- Add street design details, such as trees, sidewalks, and benches, in neighborhoods and commercial areas to enhance aesthetic appeal.
- Use traffic calming measures on neighborhood streets to reduce vehicular speeds.



**Detroit's Eastern Market provides access to a wide variety of fruits and vegetables for all the city's residents.** Photo credit: Downtown Detroit Partnership.

## Create a Network with All Types of Transportation

Active living communities have transportation networks that allow people to choose their form of transportation, including non-motorized modes such as walking and cycling. The transportation design should fit the location, from rural to suburban to urban. This diagram shows the types of pedestrian and cycling facilities appropriate to different settings.

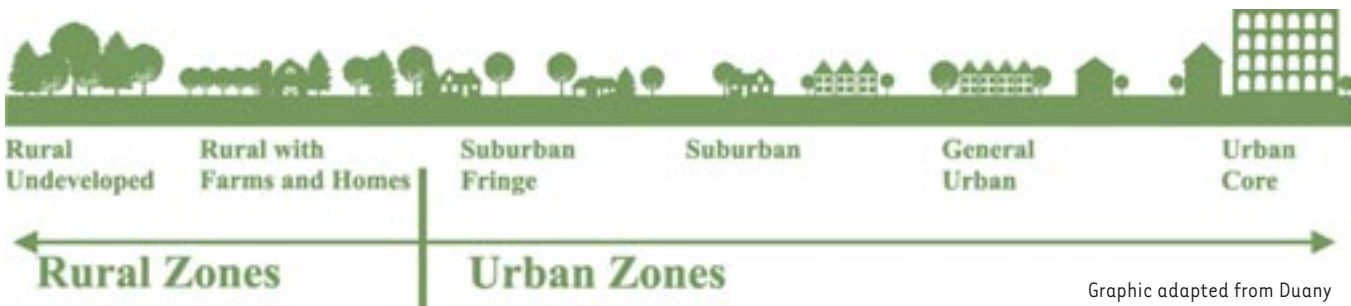
### WALKING

Trails

Shared-Use Paths

Sidewalks

Pedestrian-Oriented Streets



Graphic adapted from Duany Plater-Zyberk and Company.

### CYCLING

Wide Paved Shoulders

Shared-Use Paths (Off-road)

Shared Roadways (Signed or Unsigned for Bicyclists)

Bike Lanes

Wide Curb Lanes