

How to Create and Implement Healthy General Plans

A toolkit for building healthy, vibrant communities through land use policy change



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Introduction

As an increasing number of Americans suffer from chronic diseases like obesity, diabetes, and asthma, research is showing that the built environment – the way American cities and towns are developed – contributes to the epidemic rates of these diseases. Witness the following:

- ▶ Places built exclusively for automobiles, where walking and biking are not only challenging but frequently dangerous
- ▶ Neighborhoods known as “food deserts” because it is so difficult to buy fresh fruits and vegetables
- ▶ Neglected, garbage-strewn streets that contribute to violence and mental distress
- ▶ Housing that promotes asthma and other respiratory diseases because it is poorly maintained or located near freeways and other pollution sources



© Center for Neighborhood Technology

It is unlikely that this is what planners and developers originally envisioned – and though planning and public health currently seem to operate in separate spheres, it wasn’t always so. Modern city planning and public health arose together, in response to the need to establish health standards and building codes to guard against epidemics in the rapidly growing industrialized cities of the late 19th and early 20th centuries. Early planners first began to zone city blocks to buffer residential neighborhoods from polluting industries, and sanitary sewers were built to prevent cholera epidemics.

Once these strategies eliminated the urban health epidemics of that era, however, the two disciplines diverged. Health professionals began to focus on disease treatment, education, and discouraging unhealthy behaviors, while planning professionals focused on providing housing, jobs, and retail for a rapidly growing and increasingly mobile population. Zoning increasingly became a means to protect property values, and infrastructure projects more often served to bolster the tax base.

In recent years, the dramatic rise in chronic disease rates in cities and towns has begun to bring public health and planning back together. Since 1980, the number of obese Americans has doubled to more than one-third of the population,¹ and the prevalence of type 2 diabetes has doubled.² The asthma rate among children has more than doubled.³ Based on current obesity trends, for the first time in American history, children are not predicted to live as long as their parents.⁴

In the face of these alarming statistics, planning and public health professionals have begun to promote design and development patterns that facilitate physical activity and neighborly interactions as antidotes.

One of the tools that planners and public health officials who wish to lay the groundwork for creating healthier communities have at their disposal are *general plans*, the primary land use policy documents for California's communities.

General plans can be tools to help guide development, and the general planning process can be an effective forum in which local governments can facilitate this new partnership. Still, these are only part of a long-term strategy for incorporating health considerations into planning and development. This toolkit provides not only advice on how to include health-supporting policy in general plans but also strategies for institutionalizing interdisciplinary partnerships and ensuring that implementation strategies are embedded in these policies from the first.

This toolkit provides users with a logical progression of steps that can build upon one another, without mandating a fixed entry point. It is organized around a process of engagement, from building relationships and assessing existing conditions to creating and ultimately implementing policy language. The toolkit includes the following sections:

Laying the Groundwork for Healthy Planning discusses strategies health practitioners and advocates can use to build relationships with planners and other public officials while involving community members and building political capital and support for their work

Assessing Existing Conditions addresses the role of data in developing plans and policies, and provides an overview of data sources and ideas for collecting and using data effectively

Writing a Healthy General Plan contains a discussion of general plans and where to include health language in them

Model Health Language includes goals, objectives, and policy ideas for communities to adapt to their own local general plan needs

Implementation Policies, Plans, Programs, and Standards reviews tools where additional health-supporting policies can be included and where general plan policies can be translated into implementation

Research on Land Use and Health from Two Different Perspectives provides an overview of the literature examining links between components of the built environment and health outcomes

Steps for Planning a Healthier Community

Lay the groundwork

- ▶ Informally disseminate information on the connections between health and the built environment
- ▶ Identify and reach out to potential partners
- ▶ Begin to form personal relationships
- ▶ Organize a presentation or training on the topic of the built environment and health
- ▶ Form a Healthy Community coalition
- ▶ Propose a Healthy City/County resolution

Analyze existing health conditions

- ▶ Collect health data to begin a baseline health assessment
- ▶ Conduct environmental audits – e.g., on walkability, bikeability, neighborhood safety, community food access

Update the general plan

- ▶ Include health goals in a health element and/or integrate health goals into other elements

Ensure the plan's health goals are implemented

- ▶ Develop indicators and standards
- ▶ Use zoning tools to reduce pollution and promote pedestrian/cyclist access and safety
- ▶ Establish design guidelines for walkability/bikeability, crime prevention, and greenery
- ▶ Use building codes and health impact assessments during project review
- ▶ Promote economic development tools (taxes, fees, and subsidies) as both a source of funding for health-supportive infrastructure, programs, and policies, and as incentives to shape healthier development patterns

1 C. Ogden et al., *Prevalence of Overweight and Obesity in the United States, 1999-2004*, Vol. 295, No. 13, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, at 1549-1555 (April 2006).

2 Centers for Disease Control and Prevention, National Center for Health Statistics, NATIONAL DIABETES FACT SHEET, available at www.cdc.gov/diabetes/pubs/factsheet05.htm (last accessed 9/24/07).

3 Centers for Disease Control and Prevention, National Center for Health Statistics, STATE OF CHILDHOOD ASTHMA, UNITED STATES: 1980-2005, available at www.cdc.gov/nchs/pressroom/o6facts/asthma1980-2005.htm (last accessed 9/24/07).

4 S. J. Olshansky et al., *A Potential Decline in Life Expectancy in the United States in the 21st Century*, Vol. 352, No. 11, NEW ENGLAND JOURNAL OF MEDICINE, at 1138-1145 (March 2005).

SECTION I

Laying the Groundwork for Healthy Planning

Joining the effort to create healthy community environments can be daunting. Change in built environments – including land use, transportation, housing, and open space – happens slowly, and the momentum from existing planning practices will continue to result in unhealthy development patterns for years to come.

Nonetheless, the need to take action to fight this momentum is urgent, lest we see the potential for healthy communities pushed continually further into the future. Health-oriented policies adopted today will influence on-the-ground development decades from now.

In addition to the challenges of adopting the long-term view required for planning and development solutions, changing current planning practices will not be easy. Many people involved in the planning process will be reluctant to adopt new approaches. City council members may think that health is the responsibility of county governments (the jurisdictional home of most health departments), while planners and developers – who are not accustomed to anticipating the myriad health consequences of different land use patterns or of neighborhood designs – may resist what they might see as another example of bureaucratic intrusion. Feeding their reluctance is the fact that the research evaluating the health impact of these new planning practices is still emerging and that we are still learning how to plan healthy physical environments.

Fortunately, health is a core value for many people, and a healthy community (especially one that nurtures children, the elderly, low-income families, and other vulnerable populations) is already a goal for many residents and decision-makers. Parents want safe environments where their children can be physically active, and the elderly want communities where they can safely age in place. Supporting public health also makes economic sense. Health departments can save resources by preventing illnesses that would otherwise require treatment, and it is easier for planners to attract new investments to healthy, vibrant, safe communities.

Regardless of the specific dynamics of your community, there is a lot you can do to jump-start the process and make meaningful changes.

Getting Started

Health advocates and practitioners often ask, “What is the best way to participate in changing the built environment where I live? Where do I start?”

While it is important to take advantage of opportunities to participate in built environment decision-making as they arise – an invitation to draft general plan language, for instance, or the chance to weigh in on the design of a large-scale planned development – there are strategies that health practitioners and advocates can use that build upon each other to create a long-term, sustainable focus on healthy built environments. While the following strategies are listed in a suggested sequence, they should not be seen as mutually exclusive or strictly linear. Communities are unique, and it’s important to evaluate strategies and design a process that makes sense within a local context.

1. Informally disseminate information on the connections between health and built environments.

Sharing information about the connection between land use and health is a great first step for building a relationship with planners and other built environment practitioners. Fact sheets, studies, and online resources will help planners connect health outcomes to their work. In particular, visual illustrations (such as maps that connect disease rates, demographic characteristics, and neighborhood features or conditions) can be an effective way to convey important concepts to residents, officials, and staff alike.

This is a fairly low-cost and minimally time-consuming way to get the ball rolling. Among California communities that have been “early adopters” in inserting health language into their general plans, proactive health advocates and practitioners took opportunities to share these resources with staff and elected officials.

The research summaries in this toolkit provide an introduction to the issues for planners, health officials, and residents who are not ready to dig into more detailed and nuanced literature. *(See Appendix, “Research on Land Use and Health from Two Different Perspectives.”)*

Resources on Health and the Built Environment

National Resources

The **National Association of City and County Health Officials (NACCHO)** has a “Community Design and Land Use Program” web portal, which includes fact sheets, profiles, a flowchart for collaboration between planners and health departments, a planning/health jargon glossary, and other resources (www.naccho.org/topics/hpdp/Land_Use_Planning.cfm).

The **U.S. Green Building Council** has published a report, “Understanding the Relationship Between Public Health and the Built Environment” (www.usgbc.org/ShowFile.aspx?DocumentID=1480), which compiles extensive research on the health impacts of various land use patterns and transportation designs.

Design for Health (www.designforhealth.net) is a collaboration between the University of Minnesota and Blue Cross and Blue Shield of Minnesota aiming to connect local governments with new research into the health influences of built environments. The website includes a technical assistance library, fact sheets, and case studies.

Active Living by Design (www.activelivingbydesign.org) is a national program sponsored by the Robert Wood Johnson Foundation and the University of North Carolina at Chapel Hill School of Public Health. The website contains useful statistics and case studies on efforts to promote physical activity via environmental changes.

Active Living Research (www.activelivingresearch.org) is national program sponsored by the Robert Wood Johnson Foundation that supports research to examine how environments and policies influence active living for children and their families. The website includes an online research database and policy-related case studies.

The **Community Food Security Coalition** (www.foodsecurity.org) provides information on food systems, assessing food security, and protecting local produce suppliers.

California Resources

The **San Francisco Department of Public Health** has developed a Healthy Development Measurement Tool (www.TheHDMT.org), which contains resources for health impact assessments and includes a set of health-related planning goals, backed by rationales from academic literature and connected to a range of standards for implementation.

The **Contra Costa County Health Services Department** has published a report outlining the connections between health and the built environment, with strategies for improvements (www.cchealth.org/groups/injury_prevention/pdf/planning_healthy_communities.pdf).

2. Start a discussion and begin to form personal relationships.

In jurisdictions that have taken steps to plan healthy built environments, planners and health officials have first established personal and professional relationships.

This can happen in formal or informal ways. For example, health departments can sponsor a series of lunch meetings to introduce planners to different topics related to health and the built environment, inviting outside experts or those working on these issues within their own communities. Health and planning departments can cosponsor a public summit on the connection between the built environment and health, where staff, community members, and elected officials can learn about these links and establish common working goals. Relationship-building is an ongoing process; building trust between individuals and institutionalizing partnerships and participation will evolve over time and through continued commitment.

Another way to foster successful partnerships is to involve local elected officials in the process to champion and support increased participation and coordination. Without the political capital (i.e., leadership and direction from an elected official) to pressure or require health, planning, and other

departments to work together, it may be extremely difficult to engage with reluctant partners.

Such political capital has clearly created opportunities for relationship-building in California. In Contra Costa County, for instance, the board of supervisors unanimously agreed to direct the community development, public works, and health services departments to work together through an ad hoc committee on smart growth. In San Bernardino County, the board of supervisors convened and sponsored a summit on the built environment and health, sending out invitations to the event.

Civic organizations are also important partners in this effort, especially for engaging community residents in a discussion about locally important health issues and the built environment factors that contribute to them.

3. Organize a presentation or training.

Workshops or trainings that focus on the connection between the built environment and health can encourage interdisciplinary approaches to addressing locally relevant health issues. Several California counties and regions are using this strategy to build relationships and institutionalize professional partnerships. Such trainings have often proved to be an important catalyst for change, especially when they engage different departments of government, including health departments, planning departments, transportation engineers, and elected officials.

While they require an upfront investment, these trainings and workshops can ultimately save a lot of time and money. They allow a county health department to reach key built environment stakeholders in multiple jurisdictions at once, as opposed to connecting to each one at a time. They also offer a platform for dealing with the built environment components of health issues that transcend local boundaries, such as water quality, transportation issues, and air quality.



Illustration by Janet Cleland

Sources for Grants, Training, and Consultation

The **California Endowment** provides technical support for local governments, including conferences and minigrants (www.calendow.org/grant_guide/index.stm). In particular, TCE supports technical assistance for the Healthy Eating, Active Communities initiative (http://healthyeatingactivecommunities.org/tech_support1.php).

California's Local Public Health and Built Environment Program (www.caphysicalactivity.org/lphbe.html) provides grants to support land use and transportation planning for county health professionals. The program is a collaboration between the California Center for Physical Activity and the State and Local Injury Control Section, both within the California Department of Public Health.

The **Center for Civic Partnerships** at the Public Health Institute (www.civicpartnerships.org) facilitates learning, leadership development, and networking for individuals, organizations, and communities. The organization hosts a yearly "California Healthy Cities and Communities" conference, highlighting issues of creating healthy places.

Kaiser Permanente's Healthy Eating Active Living (HEAL) initiative (<http://xnet.kp.org/communitybenefit/index.html>) seeks to visibly transform the communities in which we live, work, and go to school, so that healthy food is convenient and affordable, and engaging in physical activity is part of one's daily life.

The **Local Government Commission** (www.lgc.org) provides manuals, consulting, and trainings on a range of issues related to livable and sustainable communities.

Public Health Law & Policy's **Planning for Healthy Places** program (formerly the Land Use and Health program) provides training and technical assistance on healthy land use planning, economic development, access to nutritious foods and opportunities for physical activity, and other topics. See www.healthyplanning.org.

PolicyLink (www.policylink.org) provides technical training, capacity building, policy advocacy, and communications training to advocates working to create healthier communities.

The Trust for Public Land (www.tpl.org) provides information and trainings related to access to parks and open spaces.

WalkSanDiego (www.walksandiego.org) has provided trainings far beyond San Diego on walkability, traffic calming, and other environment-related health topics.

4. Form a Healthy Community coalition.

Because public health overlaps with many aspects of community life, a number of jurisdictions have convened Healthy Community coalitions. In many cases these coalitions have emerged from existing projects, including the Center for Civic Partnerships' California Healthy Cities and Communities Network, The California Endowment's Healthy Eating Active Communities (HEAC) initiative, Kaiser Permanente's Healthy Eating Active Living initiative, the Network for a Healthy California (funded through the California Department of Public Health), and Safe Routes to School coalitions.

In addition to funded initiatives that have focused on health issues, planning processes themselves can prompt the formation of local coalitions. In San Francisco, for example, the proposed rezoning of industrial areas into residential areas prompted the formation of the Eastern Neighborhoods Community Health Impact Assessment coalition, and in Riverside County the anticipation of several new city-scale developments spurred work to develop healthy design guidelines.

These coalitions frequently include a range of participants, including government employees, elected officials, representatives of local businesses and organizations, and community members, including low-income residents. (See table, next page.) By meeting regularly and developing an action plan,

such coalitions have often been primarily responsible for initiating local change. Typically they have focused on public education efforts around healthy food choices, weight loss contests, community walks, and health fairs. But they have also pushed for Healthy City/County resolutions, health-oriented specific plans, and general plan language.

Healthy Community coalitions also offer an opportunity for health departments to maximize scarce resources and work with multiple cities within a county, or with cities and counties at a regional level.

Potential Stakeholders in a Healthy Community Coalition		
Government	Local Businesses and Organizations	Community Residents
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Elected officials (mayors, city councilors, county supervisors, school board members) or their staff <input checked="" type="checkbox"/> County health officers <input checked="" type="checkbox"/> Health officials involved in health promotion, environmental health, or injury prevention <input checked="" type="checkbox"/> Planning directors and staff <input checked="" type="checkbox"/> Transportation planners and engineers <input checked="" type="checkbox"/> Public works officials <input checked="" type="checkbox"/> Schools <input checked="" type="checkbox"/> Law enforcement and emergency response agencies (police/fire) <input checked="" type="checkbox"/> Recreation departments 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local developers <input checked="" type="checkbox"/> Major employers <input checked="" type="checkbox"/> Local health care providers <input checked="" type="checkbox"/> Local YMCA or other gyms <input checked="" type="checkbox"/> Churches <input checked="" type="checkbox"/> Business or commerce associations <input checked="" type="checkbox"/> Nonprofits and community-based organizations <input checked="" type="checkbox"/> Interest-based groups such as bicycle and community gardening organizations <input checked="" type="checkbox"/> Youth sports leagues 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Representatives from diverse neighborhood organizations, including youth, elderly, low-income, minorities, homeowners, renters <input checked="" type="checkbox"/> Parent-teacher associations <input checked="" type="checkbox"/> High school students <input checked="" type="checkbox"/> Faculty and students from local colleges and universities

5. Propose a Healthy City resolution.

As one of the first steps in the process of addressing health in planning, some cities and counties have drafted and passed a Healthy City resolution. While such a resolution is not generally binding, it can be a good way to build political capital for other policies that support healthy built environments. This strategy can help cultivate the support of elected officials who can champion your ongoing efforts.

A Healthy City resolution typically states that the council desires a healthy and active community, shows that there is a relationship between planning decisions and public health outcomes, and requests that the planning department work with the health department to improve community health through changes to the built environment. Some city councils have passed a resolution endorsing the Healthy City concept and formal participation in the California Healthy Cities and Communities (CHCC) program. Numerous California cities have been declared a California Healthy City through the CHCC, which is administered by the Public Health Institute under contract with the California Department of Public Health.¹

See sample language for a Healthy City resolution in *General Plans and Zoning: A Toolkit on Land Use and Health*, available at www.healthyplanning.org.

Be Patient With Barriers

Although many communities are beginning to acknowledge connections between the built environment and health, it's unrealistic to expect local planning processes to change overnight. The influence of human variables is significant, and persuading different stakeholders that certain changes are beneficial will require patience. People are often reluctant to view their jobs differently, especially if it seems to involve an additional burden—and the roles that various government officials will play may only become apparent gradually.

For example, fire departments have often vetoed traffic calming plans, arguing that such measures delay emergency response times and damage fire trucks. But as they begin to see how traffic calming measures may more effectively serve their broader goal of public safety, they may be more willing to help identify technical compromises that satisfy both purposes. (See *“Traffic Calming Strategies,” Section V.*) Eventually the same fire department officials who seemed to create obstacles may become invaluable allies.

Residents, too, may see health-related changes as threatening. Proposals to increase density, connect previously isolated neighborhoods, or slow down traffic may be opposed by residents who take a “Not in My Backyard” (NIMBY) position. When they have the information to weigh the health costs and benefits of these projects, however, the community as a whole may support such proposals. The process might just take a long time. A word of advice: take the long view, and celebrate small and incremental improvements.

¹ For more information, see the Center for Civic Partnerships website at www.civicpartnerships.org.

Roles for Health Officials and Planners

Health officials and urban planners are two of the groups most likely to be involved in crafting healthy built environments within the public sector. Each approaches the issues from a different perspective and operates within a different framework, yet both have an important contribution to an effective partnership.

Health Officials

For health officials, the built environment serves as a “determinant of health” that influences rates of metabolic disorders, respiratory health, and mental well-being, among other health outcomes. When health departments publish community health reports, they can highlight the spatial patterns of various health issues, drawing attention to relationships between health measures and the conditions of neighborhood built environments. This can help make the case for health-oriented planning decisions and prioritize the most important health concerns.

Health departments often already have the health information planners might find useful. However, they may be more accustomed to presenting data by population subgroup, such as by ethnicity or income level, rather than spatially. For health data to be relevant to specific built environment decisions, it must be presented in a way that makes clear their links to “place,” such as within a neighborhood, along a highly trafficked corridor, or at the urban core or fringe.

A health department could prepare a map, for example, that correlates health outcomes with geographic location – the prevalence of childhood asthma rates with the location of major roads and freeways, perhaps, or rates of obesity with concentration of fast food outlets versus grocery stores. Health officials also should understand how to target the use and dissemination of this information, such as during the development of land use policy (e.g., general plans, zoning, and area plans), and during the project review process. Health officials can also help write health-oriented policies and design guidelines, develop health-based “checklists” for project proposals,

Legislation Supports Health Officer Involvement

Health officers already have the authority to advise planners, but California assembly member Dave Jones recently introduced legislation that would formally acknowledge the role of health officers to consult planners on new concerns connected to the built environment. The legislation encouraged health officers to consider links between respiratory disease and air quality, injury prevention and motor vehicle crashes, healthier eating opportunities and community design, violence prevention and street safety, and other health issues and their relationship to land use.

and even sit on development review working groups. (See Section V, “Implementation Plans, Programs, Policies, and Standards,” for more detail on each of these strategies.)

Planners

For planners, improving and protecting community well-being and quality of life are already priorities, but health-oriented arguments may be new and unfamiliar. Many advocates for planning and design concepts like “new urbanism” (creating walkable neighborhoods with a mix of housing and jobs) rely on aesthetic or community development arguments, even though health-based arguments may be just as or more persuasive for decision-makers. Similarly, policies that argue for farmland protection solely from an economic or community preservation standpoint would benefit from the nutrition-related rationale of developing and maintaining local, safe sources of fresh and nutritious foods.

A key role planners can play is to welcome health advocates into the planning process, soliciting health officials’ comments on project proposals and plan language. Planners also can weigh the economic costs of different health-related planning programs, prioritizing those likely to be most cost-effective and those that serve the most disproportionately affected populations.

Resources for Working Together

For more information and advice on forming partnerships between planners and health practitioners, see “Working with Elected Officials to Promote Healthy Land Use and Community Design” (<http://archive.naccho.org/documents/LUP-Working-with-Officials.pdf>), a publication from the **National Association of County and City Health Officials (NACCHO)**.

NACCHO has also published a useful glossary of terminology, “Public Health Terms for Planners & Planning Terms for Public Health Professionals” (<http://archive.naccho.org/Documents/jargon.pdf>).

The task for both planners and health officials is to breach their respective “silos” of activity. Informally, they can begin sharing information with others about the literature connecting health and built environments. More formally, they can host roundtables on the topic for staffers from a range of local government agencies. In the longer run, they can establish a full- or part-time liaison between departments, or include interdepartmental coordination into existing job descriptions.

SECTION II

Assessing Existing Health Conditions

In order to create effective, locally relevant land use policies to promote public health, communities must understand the nature and extent of their health issues.

Analyzing existing conditions, or creating a *baseline assessment*, is one of the first steps that communities undertake when updating their general plans. Also known as a *technical background report*, this assessment consists of quantitative information about the city or county's demography, housing stock, economic make-up, and other current conditions and trends. A baseline assessment is important because it supports the policy direction of the general plan.¹

Even for communities not undergoing a general plan update, an analysis of existing conditions will provide critical data and insight when including health considerations in any land use plan or policy.

This section of the toolkit provides questions for a community health baseline assessment, which include selected research questions that can be explored in this analysis. A list of potential data sources is also included to help answer the questions. The information can be presented in tabular form (as a series of tables or statistics) or spatially using geographic information systems (GIS) mapping.

In this type of analysis, maps of fine-grained health variables can be a great way to link built environment and health issues for decision makers and community residents. By showing spatial disparities and problem areas, they can focus community attention and mobilization.

Note, however, that several variables can confound spatial analysis. Socio-economic status in particular has a profound influence on health, regardless of where people live. At the same time, people tend to live with neighbors of similar income status, in part because of the many financial and other barriers to developing mixed-income communities with a mix of housing types.

Geographic scale and precision of data will also influence spatial analysis. For example, a large census tract may have more traffic collisions than a

small one simply because it includes more intersections. In this case, displaying a rate of collisions would probably be more appropriate than using raw numbers.

For cities and counties without in-house GIS capacity, the state health department may be able to provide some level of GIS assistance. While your county might not have sector-by-sector data, the state should at least be able to provide data or a visual display of your county's disease prevalence relative to others in the state. The state could also provide a WIC (Women, Infants, and Children) program map showing the location of poor women and children and a map of Medi-Cal recipients, indicating poverty and health care needs.

The type of data and information included in the baseline analysis will vary greatly from one jurisdiction to another, and communities should determine which data best illustrates the current issues and opportunities for change. That said, the information for baseline health assessments should be a combination of data from planning and public health departments. The indicators should focus on the health topics that are known to be influenced by the built environment and built environment characteristics that have a proven connection to health outcomes. *(See Appendix, "Research on Land Use and Health from Two Different Perspectives.")*

¹ W. Fulton, GUIDE TO CALIFORNIA PLANNING, 2nd Ed., at 105, *Chapter 6: The Basic Tools* (Solano Press Books, Point Arena, CA, 1999).

Questions for a Baseline Community Health Assessment

The following list suggests topic areas and questions that could be addressed in the baseline analysis. This list is only a starting point; questions should be tailored to a community's own characteristics.

Overall Health of Community

Causes of death. What are the primary causes of death in the city or county? Which ones are related to the built environment? What is the geographic distribution of mortality?

Vulnerable populations. What percent of the population are infants or young children? Adolescents? Elderly? What is the geographic distribution of these populations? How many community clinics, hospitals, or nursing facilities are there, and where are they located?

Obesity/overweight rates. How many adults are overweight or obese? How many youth/children are overweight or obese? Are they clustered in specific neighborhoods? Are there socioeconomic or other patterns that can be identified?

Physical Activity

Proximity to parks, open space, and recreation facilities. What is the proximity of parks to residential and commercial areas? What percentage of the residential population is located within a quarter- or half-mile of parks, open spaces, and active-recreational facilities? What is the parks-to-people ratio? Do these vary by neighborhood?

Mix of uses. What is the mix of land uses? How close are people to a variety of uses, including retail, daily services (e.g., the post office), and schools? Can people readily and safely meet their everyday needs without a car?

Jobs-housing balance and match. What is the ratio of jobs to housing in the community? What is the match between local jobs and the skill level of

residents? What percentage of residents live and work within the jurisdiction or nearby jurisdictions?

Land use density. What is the density of residential and nonresidential development in different parts of the jurisdiction?

Overall level of physical activity. What percentage of the community meets the minimal recommended weekly activity levels? How do these rates differ in different neighborhoods?

Nutrition

Access to healthy food. Where are the stores that offer healthy food, such as grocery stores, produce markets, farmers' markets, and community gardens? How accessible are they for different communities – can all residents walk or take transit to healthy food outlets? Are EBT cards (food stamps) accepted?

Number of fast food restaurants and offsite liquor retailers. What is the retail food environment index (RFEI) – that is, the total number of fast-food restaurants and convenience stores in a geographic area divided by the total number of supermarkets and produce vendors? Does this vary by neighborhood? Is there a geographic concentration of liquor stores or convenience stores that sell liquor?

Local agricultural resources. How much food do local farms provide for the community? What portion of the local farms are organic?

Food distribution. What distribution networks (wholesalers, warehouses, and processors) are available to bring local produce into grocery stores, restaurants, schools, and hospitals? Where are they located?

Transportation

Traffic injuries and fatalities. How many traffic injuries and fatalities are there per year? Where are the largest number of traffic injuries and fatalities occurring? What is the percentage of traffic accidents that involved pedestrians or non-motorized vehicles?

Mode split. What are the rates of driving, walking, biking, and public transit? How does this differ by neighborhood? What is the average annual vehicle miles traveled (VMT) per capita for different areas of the jurisdiction?

Commuting. What are the average commute times and distances? How integrated are job/commercial and residential uses throughout the jurisdiction? What percentage of the population leaves the area for work?

Transportation network. How walkable is the jurisdiction? What percentage of roads have sidewalks on one or both sides of the street? What percentage of streets have street trees? What are the block lengths in different areas of the jurisdiction? What is the street intersection density or the street network density in different parts of the jurisdiction?

Respiratory Health

Asthma and other respiratory ailments. What are the rates of asthma and other respiratory ailments? Are there concentrations of cases of asthma? What is the proximity of neighborhoods, schools, and employment centers to roadways and other pollution sources? Does it vary by neighborhood? What percentage of the population is located within 500 feet of major roadways, heavy industrial uses, or warehouse/distribution uses?

Air quality/toxic contaminants. What is the quality of outdoor air? What are the main toxic contaminants (e.g., particulate matter, sulphur dioxide)? What are the sources of toxic contaminants (e.g., traffic, industry, dry cleaners)? What is the quality of air in households and offices? In public housing units? Where are the sources of air or water contaminants located, and what types of development are around them? Where are the contaminants concentrated (e.g., along roadways, downwind of industry)?

Mental Health and Social Capital

Mental health. What are the rates of depression and other mental illness? Do they vary by neighborhood or socioeconomic status?

Participation. What are the voting rates in different neighborhoods? What are the rates of participation in planning processes by different communities?

Stability. How affordable is housing? What proportion of their income do residents in different neighborhoods pay for housing? Where are there geographic concentrations of poverty? What percentage of residents in different communities have served time in jail?

Community safety. Where are the pockets of crime, especially assault-related crimes? Where are the liquor stores or blighted properties that might contribute to crime and violence?

A variety of local, regional, county, state, and federal sources can provide the information and data to answer the above questions. In addition to typical land use information, health data and statistics can come from sources such as the public health department, the police or sheriff's department, schools and the county assessor's office. In many cases, the data is available from the county but has never been used for physical planning purposes.

Sources of Health Data

Communities conducting a baseline analysis will need to spend time developing research questions specific to their jurisdiction, and then research where the most robust data may be obtained. For sources beyond those listed here, see *General Plans and Zoning: A Toolkit on Land Use and Health*, available at www.healthyplanning.org.

National Sources of Community-Level Health Data

American Community Survey (www.census.gov/acs): Contains raw and tabulated data on demographic conditions, employment, education levels, and commute patterns.

National Household Travel Survey (<http://nhts.ornl.gov>): Contains extensive local data on the travel behavior of the American public. Data can be viewed online or downloaded by county, census tract, or traffic analysis zone.

Census 2000 (www.census.gov): Provides demographic data by state, county, city and census tract.

National Center for Health Statistics (www.cdc.gov/nchs/nhis.htm): An interactive website by the Centers for Disease Control and Prevention (CDC) that contains detailed information on health conditions in the United States. Data can be downloaded and analyzed.

EPA Toxic Release Inventory (www.epa.gov/tri): Contains data on releases of toxic chemicals and other waste management activities.

California County-Level Health Data

California Health Interview Survey (www.chis.ucla.edu): Provides state and county data on hundreds of health topics.

The **California Nutrition Network** (www.cnngis.org): Contains an interactive, internet-based geographic information system (GIS) that allows users to view and query mapped nutrition data. The application contains a rich set of nutrition and other health-related data, including nutrition and school health programs, grocery stores and restaurants, WIC vendors, and other local nutrition resources, and demographic information (race and spoken language) of general and at-risk populations.

California Center for Public Health Advocacy (www.publichealthadvocacy.org): Has an analysis of retail food outlets in counties and cities with populations greater than 250,000 (www.publichealthadvocacy.org/RFEI/presskit_RFEI.pdf) and a GIS database showing rates of overweight in children by assembly district (www.gisplanning.net/publichealthnew/map.asp).

Statewide Integrated Traffic Records System (www.chp.ca.gov/switrs): Contains a database of collision records collected by local police throughout California and the California Highway Patrol.

California Air Resources Board (www.arb.ca.gov/html.databases.htm): Has links to a number of databases with air quality information for every air monitoring station in the state.

California Center for Health Statistics (www.dhs.ca.gov/hisp/chs/default.htm): Contains health data for California.

City and County Sources of Data

Local association of governments (e.g., ABAG, SCAG, SLOCOG, SANDAG): Typically collects data on demographics, land use, and economic conditions in the region and specific cities.

County assessor data: Contains parcel level data that includes existing land use, building size, parcel size, land and improvement value. The information can be geocoded by parcel number.

Police department: Typically collects data on crime statistics and traffic crashes within the jurisdiction.

City/county planning department: Typically collects data on existing land use, land use designations, zoning, affordable housing, economic and demographic characteristics, and building code violations. Data is often included in GIS databases managed by the city or the county.

City/county public works department: Typically collects information on street networks, infrastructure, and traffic volumes.

County mental health department: Typically collects information on levels and types of mental health conditions in the jurisdiction.

County department of public health: Typically collects data on vital health statistics (such as causes of death) and other local data, including levels of physical activity and nutritional eating.

County transportation commission: Typically collects regional-level transportation data including transit system characteristics, mode split, and vehicle miles traveled in different parts of the region.

County transit agency: Typically collects transit information such as the location of transit facilities, frequency of transit service, and the number of transit trips from each transit stop and on each route.

Regional air quality management district: Typically collects data on levels of air pollution in different parts of the region.

Examples of Baseline Health Assessments

Many health departments have done excellent countywide analyses. Analyses that include maps or focus on particular cities are less frequent.

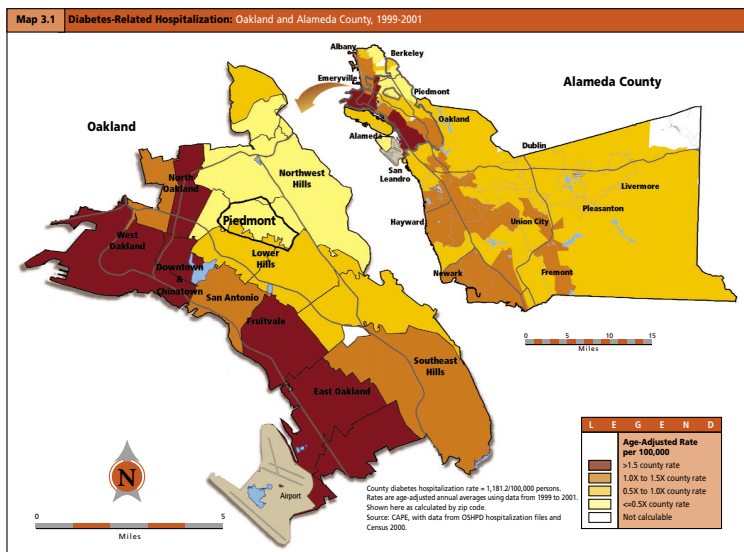
San Francisco's **Healthy Development Measurement Tool** (www.theHDMT.org) provides health-based rationales, goals, and indicators applicable to other jurisdictions. The public health department also has used it to generate a wide range of health-oriented maps, including proximity to farmers' markets, noise levels, bike collisions, and truck routes.

Issues and Opportunities Papers for the city of Richmond's upcoming general plan update (www.cityofrichmondgeneralplan.org/docs.php?ogid=100000207) includes a baseline assessment built largely from the framework of the Healthy Development Measurement Tool described above.

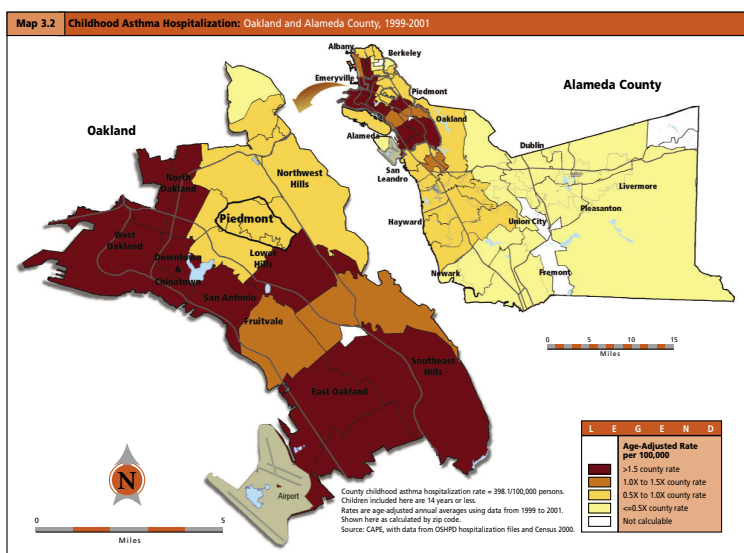
Existing Conditions Report (2006) for the city of Chino's upcoming general plan update (www.cityofchino.org/civica/filebank/blobload.asp?BlobID=3838) includes an extensive chapter on public health, which looks at physical activity, availability of healthy food choices, traffic crashes, respiratory illnesses, and community social networks.

The Los Angeles County Department of Health Services' Office of Health Assessment and Epidemiology has produced an excellent resource: **Premature Deaths from Heart Disease and Stroke in Los Angeles County: A Cities and Communities Health Report** (www.lapublichealth.org/epi/docs/CHR_CVH.pdf). Notably, this report provides information on heart disease and stroke, as well as economic hardship, by city or community (spatializing the data to inform built environment policy decisions).

The **Oakland Health Profile (2004)** includes extensive statistics on mortality, disease incidence, and injuries, as well as maps of variables such as diabetes prevalence and asthma hospitalizations (www.acphd.org/user/data/DataRep_ListbyCat.asp?DataRepDivId=2&DataRepDivCatId=34).



The Oakland Health Profile (2004) includes maps comparing diabetes and childhood asthma hospitalization rates across the city and county.



Walkability and Bikeability Audits

Walkability and bikeability audits have become popular tools for identifying barriers to walking and cycling within neighborhoods. A walkability audit broadly assesses pedestrian facilities, destinations, and environments along and near a walking route, and identifies specific improvements that would make the route more attractive and useful to pedestrians. Similarly, a bikeability audit reviews cycling conditions along specified streets to explore issues such as off-road paths, riding surfaces, intersections, sharing the road with cars, behavior of drivers, end-of-trip facilities, directional signage, and safety.

Several cities and national and state organizations have developed audit tools or checklists to evaluate factors that help or hinder walking and biking in a neighborhood, along a street corridor, or near a school. (*See list on the next page.*) The Centers for Disease Control and Prevention (CDC) also has a workplace walkability audit that helps map out the most commonly used walking routes in employment areas and then identify the most common safety hazards and inconveniences that can keep employees from walking at work. Community groups and cities across the United States have used walkability and bikeability audits not only to inform pedestrian and bicycle master plans, but also to take individual actions such as informing city engineering departments about problems.

Walkability and bikeability audits provide an excellent opportunity to engage residents in assessing their neighborhood conditions and speaking up for healthy changes, especially in low-income communities, where the greatest disparities may exist in terms of infrastructure that supports daily physical activity. These audits can also be an chance to engage elected officials – who may see more clearly the importance of improved pedestrian and bicycle infrastructure when they walk the streets alongside community members during an audit – as well as an opportunity to get media coverage of your work.

Walkability and Bikeability Audit Resources

CDC Workplace Walkability Tool: www.cdc.gov/nccdphp/dnpa/hwi/toolkits/walkability/audit_tool.htm

Pedestrian and Bicycle Information Center Walkability and Bikeability Checklists:
www.walkinginfo.org and www.bicyclinginfo.org/pdf/bikabilitychecklist.pdf

National Center for Bicycling & Walking Community Assessment Tool:
www.activelivingresources.org/assets/community_assessment_tool.pdf

Active Independent Aging: A Community Guide for Falls Prevention and Active Living, from the Community Health Research Unit, includes a walkability checklist that focuses on aging: www.falls-chutes.com/guide/english/resources/handouts/pdf/WalkabilityChecklist.pdf

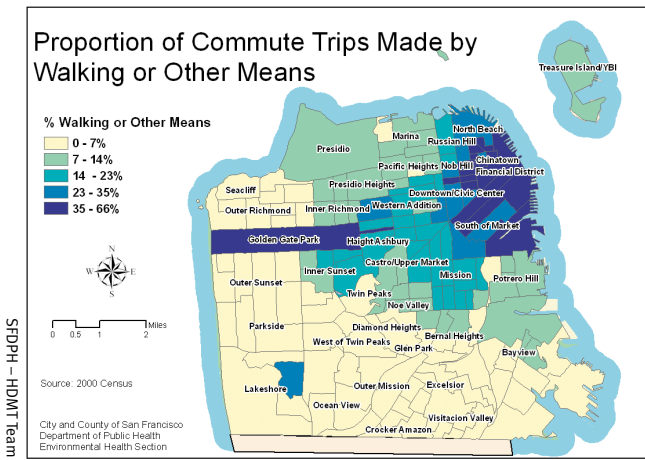
The **Network for a Healthy California's Champions for Change** initiative has resources on physical activity assessments and walkability assessments that community residents can undertake themselves: www.cachampionsforchange.net

California's Walk to School Program walkability checklist: www.cawalktoschool.com/checklists.html

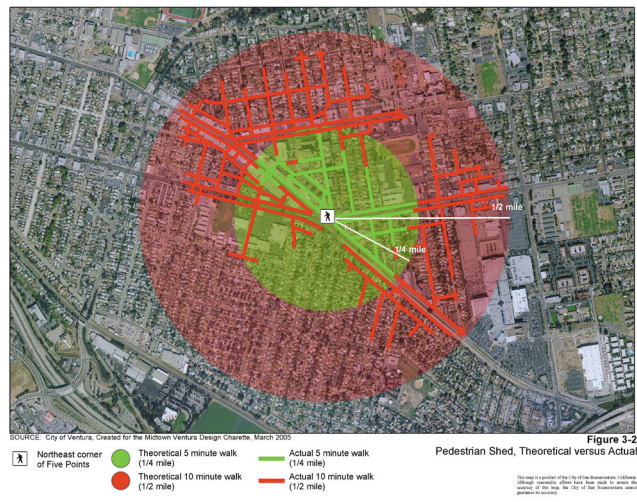
Shasta County walkability checklist: www.healthyshasta.org/downloads/WalkabilityChecklist.pdf

The **Local Government Commission** hosts a web-based resource center on creating bike- and pedestrian-friendly communities: www.lgc.org/transportation

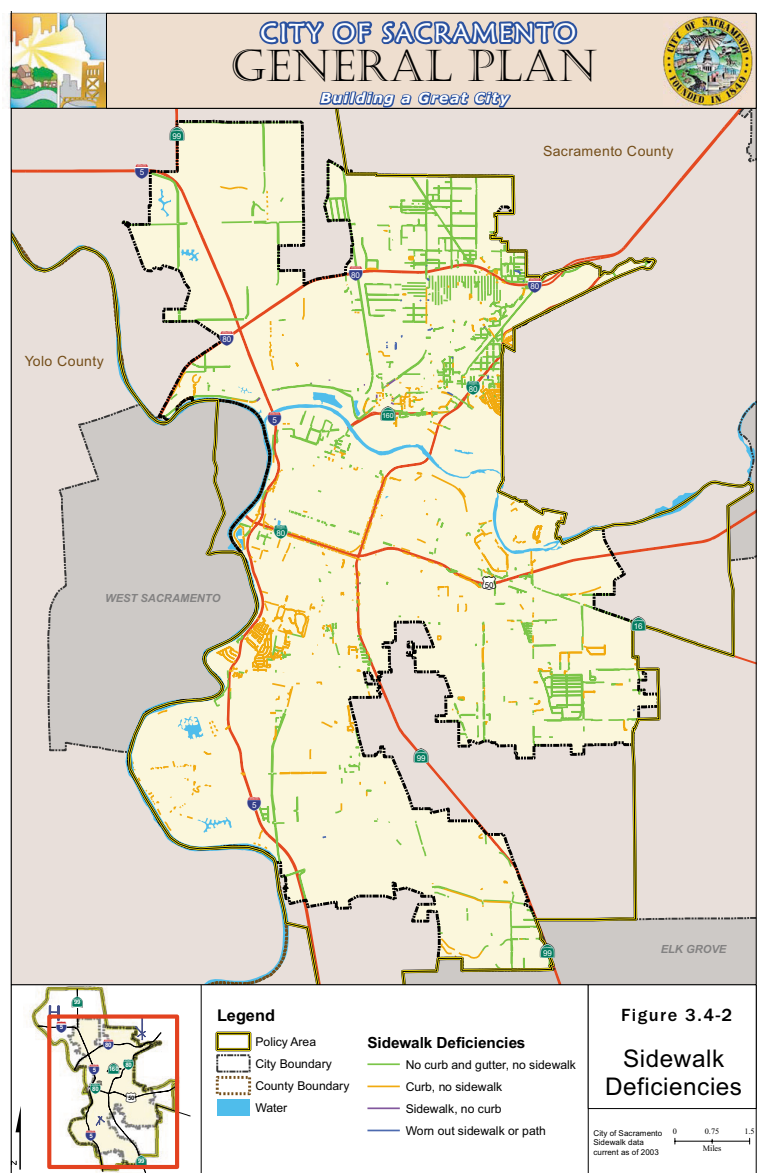
Walkable Communities, Inc., offers a range of tools for creating walkable neighborhoods: www.walkable.org



SRDPPH - HDMT Team



City of Ventura



City of Sacramento

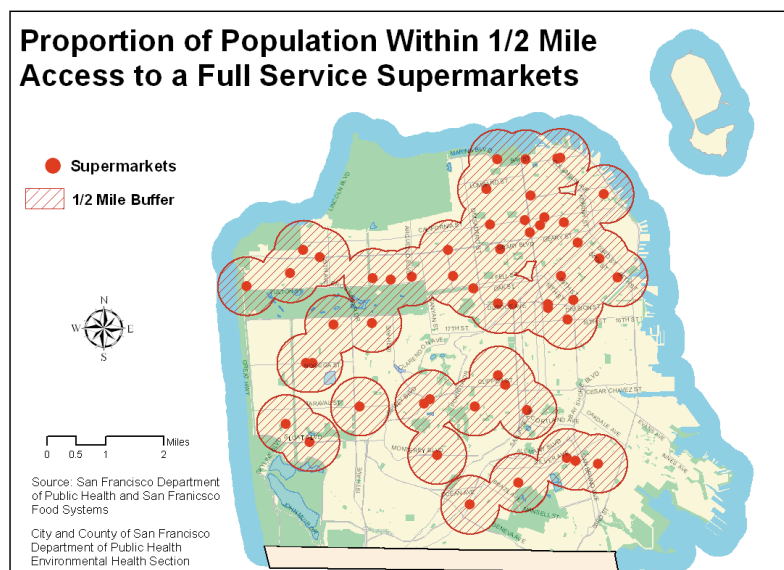
Examples of mapping pedestrian infrastructure (left) and pedestrian/walkability data (top left and right)

Community Food Assessments

Community food assessments provide important data about the quality, quantity, price, and location of food retail of all kinds (including supermarkets, corner stores, farmers' markets, and community gardens) within a defined geographic region such as a neighborhood, city, county, or region. Health advocates interested in documenting how the food retail landscape affects healthy food choices and diet-related outcomes may find community food assessments a useful tool. Residents can also be engaged in community food assessments, identifying gaps and opportunities for accessing healthy, affordable fruits and vegetables within their own neighborhoods.

Food assessments are especially important in making the case for attracting new, healthy food retail options or improving existing ones through land use and economic development policy incentives. Conversely, they can help build a case for regulating or restricting unhealthy food options that are overconcentrated in neighborhoods.

Example of mapping grocery store access



Community Food Assessment Resources

For information on crafting a strategy and involving residents to collect community food data, see *Economic Development and Redevelopment: A Toolkit on Land Use and Health* (chapter 16), available at http://healthyplanning.org/toolkit_edrd.html.

The **Community Food Security Coalition's** guide, *What's Cooking in Your Food System*, features food assessment case studies: www.foodsecurity.org/CFAGuide-whatcookin.pdf

The **Network for a Healthy California** has an excellent guide for engaging low-income and other community residents in "fruit and vegetable" assessments through its Champions for Change initiative: www.cachampionsforchange.net/en/index.php

For a good example of a community food assessment, see *A Food Systems Assessment for Oakland, CA: Toward a Sustainable Food Plan*: http://oaklandfoodsystem.pbwiki.com/f/OFSA_TOC_ExecSumm.pdf

For an example of an assessment of liquor stores, see *The Good, the Bad, and the Ugly: A Report Card and Recommendations on Oakland's Liquor Stores*, which graded each store based on the number and types of violations reported: www.oaklandcityattorney.org/PDFS/LiquorStore%20ReporttoCouncil%202004.pdf

SECTION III

Writing a Healthy General Plan

The General Plan as a Tool for Change

As the “constitution” of a community, the general plan underlies all land use decisions. Legally, all local government land use policies must rest on the principles and goals of the general plan. Since general plans also take a long-term vision – typically spanning 10 to 20 years – those with strong health language can powerfully orient government actions for decades.

Local governments stand on solid legal footing when acting to protect and improve public health. In California, counties are formally charged with public health responsibilities by the state government (with a few exceptions), but city governments have the right to protect citizens’ health as well. Courts have repeatedly protected local governments’ power to formulate policies that promote the public’s “health, safety, and general welfare.”¹

Most general plans in California already address a range of health issues, including seismic safety, bicycle and pedestrian issues, air quality, noise, parks and recreational facilities, and exposure to hazardous materials. Even so, public health per se is rarely high on the list of issues addressed by general plans. Specific direction about how planning decisions shape healthy food access, active living, aging in place, respiratory illnesses, and other public health issues connected to the built environment is usually absent from general plans.

There are many ways for communities to promote public health through their general plan. The planning process as a whole is an opportunity to engage and educate the community about the state of its health and to invite residents to participate in identifying local health issues. Within the general plan itself, there are opportunities for health-related goals and policies throughout – in chapters known as *elements*, which outline policies according to various themes such as land use, housing, and safety.

When it comes to developing a healthy general plan, communities will adopt different approaches based on local priorities and concerns. For instance, rapidly growing cities or counties that are expanding onto previously undeveloped land have the opportunity to incorporate health considerations

General plans are the legal bedrock of a local government’s actions, particularly those that influence land use. A general plan with solid health priorities can improve a community’s well-being many decades into the future. The challenge is in developing language specific enough to ensure that the stated goals are pursued, and that local governments continue to adapt over time to growing knowledge and changing circumstances.

California general plans must contain these seven elements:

- ▶ Land use
- ▶ Circulation/Transportation
- ▶ Housing
- ▶ Conservation
- ▶ Open space
- ▶ Noise
- ▶ Safety

Other elements are optional. For more information, see *General Plans and Zoning: A Toolkit on Land Use and Health* (www.healthyplanning.org/toolkits.html)

more deeply into new infrastructure. By contrast, more urban or built-out areas will wrestle with how to transform poorly designed communities into healthier places. In communities where protecting farmland is a priority, health advocates can tie this to the goal of improving nutrition by supporting local farmers as a source of healthy fruits, vegetables, and other foods. In economically segregated cities, the health priorities may focus on affordable housing, local economic development, and violence prevention.

What follows are suggestions for where to include health-supporting policies within a general plan. These elements are worth highlighting due to their broad impact on neighborhoods' and communities' shape, character, and activities – and, in turn, on their ability to be healthy places to live, work, and play. Health-supporting policies can also be included in additional elements (see *Section IV, “Model Health Language”*).

Vision Statement

Every general plan includes a concise vision statement about the future of the jurisdiction. Typically developed through broad-based public discussions in community workshops, the vision statement is an ideal place to emphasize the value of health in the community. The vision statement should include specific language on health outcomes such as physical activity, air quality, access to health care, and access to healthy foods. Including the community's most important health concerns in the vision statement will provide the backdrop for including health in other elements of the general plan.

Land Use Element

One of the most important elements in the general plan in terms of its contributions to health outcomes is the land use element, which includes specific information on the allowable uses and density or intensity of development on every parcel within the jurisdiction. It's clear that many negative health outcomes are directly affected by land use patterns (see *Appendix, “Research on Land Use and Health from Two Different Perspectives”*). Crafting a more health-friendly land use element is critical to the overall health of the community.

Patterns of low-density and poorly connected development can often result in auto-centered communities that discourage residents from walking. As jurisdictions update their general plans, they can explicitly promote land use patterns that increase the density and intensity of development and mix of uses – especially in downtown areas, along major transportation corridors, and in employment districts. Also, a general plan's land use designations (the intended future use for each parcel) should ensure that densities are high enough to support walking, biking, and transit use.

Another important strategy is to include urban design policies in the land use element. Urban design is important for health because it addresses the form and character of the community, which in turn can promote walking and biking and reduce dependence on driving. General plans that address urban design add a third dimension to typically two-dimensional land use planning.

Urban design strategies can involve the location of parking lots on a parcel, the relationship of a building to the street, and architectural and façade features such as the placement of windows. The city of South Gate’s general plan, for instance, includes “place type” designations, each of which identifies allowable uses, density of development, building height, building location and placement, pedestrian and transit access requirements, and vehicle parking requirements. Other cities (such as Sacramento, Azusa, and Ventura) maintain typical land use designations in their general plans but add “urban form districts” where various urban design strategies and outcomes apply – each district will contain strategies on form and character of development. This emerging practice of developing “form-based” general plans results in a better mixing of uses and allows more specificity about the design vision for each area of the jurisdiction. *(See “Zoning, Neighborhood Plans, and Development Standards” in Section V of this toolkit.)*

Circulation/Transportation Element

In terms of health outcomes, the circulation or transportation element is another of the most important elements in the general plan. To be health-friendly, this element should identify a balanced transportation system where the needs of all users – cars, trucks, transit vehicles, pedestrians, bicyclists, and the disabled – are considered. The transportation system should also be jointly considered with future land uses so that the design of the roadway works in parallel to create healthy communities.

Specific policies for the circulation or transportation element include multimodal roadway plans, traffic calming, bicycle plans and pedestrian plans *(see “Road Designs and Standards” and “Master Plans” in Section V of this toolkit).*

Housing Element

The housing element identifies locations for affordable housing in the community and can promote neighborhoods with a mix of housing types and a range of affordability levels. The housing element works in concert with the land use element to ensure that communities have the appropriate densities and locations to provide affordable housing.

Parks and Recreation Element

Many jurisdictions include a separate, stand-alone element regarding parks and recreation facilities. This is an important element for health and safety outcomes because its goals and policies address standards for park size, locations, and access. Locating new parks within a quarter-mile walk of homes, setting standards for new park facilities, and establishing recreational programs for youth and seniors should all be considered in this element. *(See “Master Plans” in Section V for specific strategies for parks and recreational facilities that can be included in the general plan.)*

Public Facilities and Services Element

While it's not required by state law, many jurisdictions include a public facilities and services element. This element addresses a range of facilities and services – from police, fire, and schools to infrastructure such as water, sewer, and wastewater services – that are necessary to ensure healthy, safe, and active communities. The police and fire sections can set standards for public safety and promote building guidelines that prevent crime and violence. The schools section can address issues around locating schools within walking or biking distance of homes, as well as promote the joint use of school facilities for community recreational activities.

¹ See GENERAL PLANS AND ZONING: A TOOLKIT ON LAND USE AND HEALTH, available at www.healthyplanning.org/toolkit_gpz.html.

A Separate Health Element?

Not surprisingly, health-oriented general plan language has taken many different forms in California’s diverse communities. While some have chosen to place public health policies within the land use or transportation elements, others have emphasized health language in nontraditional components such as an economic development, agriculture, or socioeconomic element. Another strategy, which may not be mutually exclusive, is to craft an entirely separate health element.

A few California jurisdictions, including Chino and Richmond, have decided to write a stand-alone health element. A separate health element can bring special preeminence and political visibility to a community’s health-related goals. And some issues (such as nutrition or health impact assessments) may not fit naturally into any required element but may be suited for consideration in a health element.

However, confining all health-related goals into a discrete element may also make implementing them more difficult. Even though all of the goals and policies in a general plan are required to be consistent with one another, some elements can undercut a health element’s goals. For example, while a general plan’s health element may promote walkability, the land use element in the same plan may chart out the addition of more fragmented and car-dependent neighborhoods. Although health-related goals and policies will technically have equal legal weight wherever they are written, in practice health advocates may have difficulty achieving their goals by focusing on just one element.

Some elements already address a range of health concerns: for instance, all of the goals of the safety, recreation, and noise elements have a relationship to residents’ health and well-being. In many cases, communities may find benefits to integrating health language into other elements. For example, the goal of promoting physical activity can be a powerful rationale for mixed-use (walkable) zoning in a land use element. Likewise, identifying the many health benefits of green spaces may add priority to the goals of a parks and recreation element. The goal of reducing the number of bicycle accidents,

A separate health element can give special prominence to a community’s health priorities, but all elements of the plan should consider health.

Health goals tied to specific policies and standards and supported by an engaged community are more likely to be realized.

while certainly a health-related goal, may fit as easily into a circulation element.

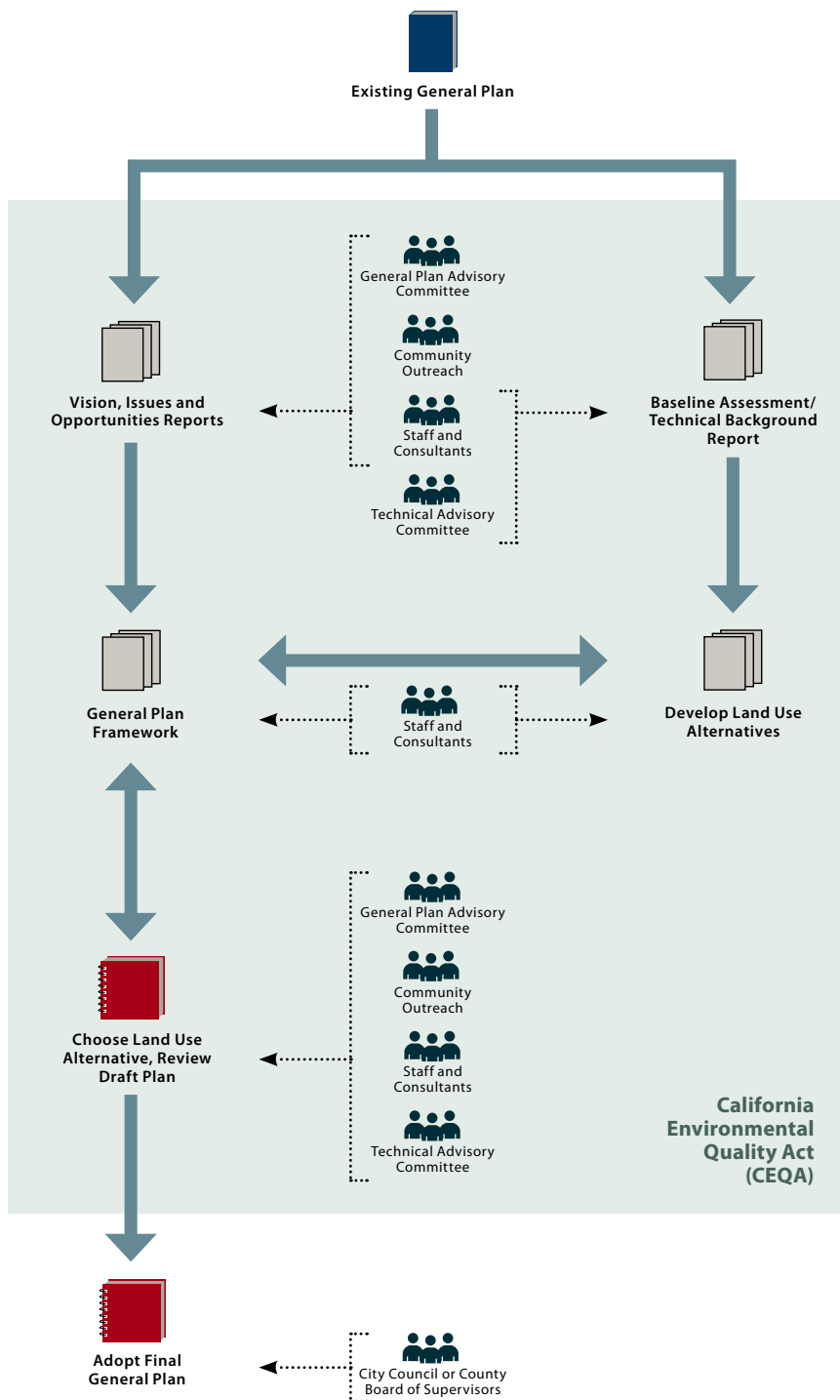
Moreover, many community residents and developers may reference only one element of the general plan. When they see health-related goals alongside land use, transportation, or housing policies, the health objective is more likely to influence their decisions. A transportation engineer might never read a health element, for instance, but would certainly read any language about pedestrian accessibility or bicyclist safety in the circulation element.

Questions to Ask

What to consider when pursuing health language in general plans and other land use plans and policies:

- ▶ Is there a local elected or appointed official who is championing health issues and their inclusion in land use policy documents?
- ▶ Are funds already earmarked in the general plan update budget for incorporating public health? Will there be resources to hire an outside consultant, pay for dedicated planning and public health staff time, and conduct additional community outreach?
- ▶ If dedicated funds are not available, can public health staff contribute significant in-kind time to attending meetings, providing public health data, developing policy language, reading and commenting on drafts, and conducting public outreach?
- ▶ Are there community-based organizations that can assist in the above tasks?
- ▶ Are the pressing local public health issues more effectively incorporated into existing elements, or will they be better addressed by a separate element?

Typical General Plan Update Process



Undertaking a comprehensive update to a general plan typically involves several committees, as well as broad community outreach. There are a number of key points at which public health participation can be particularly useful in influencing the policies and direction of the plan, with the earliest involvement providing the most opportunity for in-depth guidance.

The **General Plan Advisory Committee** is usually made up of key stakeholders in the community who can help shape vision and direction. **Community Outreach** usually consists of public meetings, traveling “plan vans,” or other ways to solicit community input. A team of **Staff and Consultants** work on preparing the technical background report (see *Section II, “Assessing Existing Health Conditions”*). Staff and consultants may report to a **Technical Advisory Committee**, which directs the research and technical reports that are prepared by staff and consultants.

Public health involvement could come through sitting on the general plan advisory committee, helping with health-specific community outreach, or providing data and input through a technical advisory committee for the baseline assessments. Public health advocates can also provide input and policy guidance throughout the development and review of the draft plan.

The California Environmental Quality Act (CEQA) Environmental Impact Review (EIR) process occurs simultaneously with a general plan update, and offers additional points for participation in the plan’s development (see *Section V for more information on CEQA*).

Existing Health-Oriented General Plans

A handful of cities and counties have addressed public health issues directly in their general plans. Some plans contain distinct health-related elements, while others have health language integrated throughout.

Health Elements

Anderson's health and safety element (2007) includes a public health section in its forthcoming general plan. A January 2007 draft promoted physical activity via mixed-use and infill development, and access to parks and recreational trails. www.ci.anderson.ca.us/Generalplan_update_07.asp

Benicia's community health and safety element (1999) explicitly establishes health as a community priority, setting goals relating to community participation, access to health services, substance abuse, crime prevention, water and air quality, hazards, emergency response, and noise. www.ci.benicia.ca.us/pdf/generalplan/BeniciaGP-part2-Nov03.pdf

Chino will include a "Healthy Chino" element in its general plan update (2008), with topics likely including physical activity, nutrition, transportation safety, air pollution, and civic participation. www.cityofchino.org/depts/cd/general_plan/default.asp

Chula Vista's land use and transportation element (2005) includes access to healthy foods, walkability, pedestrian and bicycle safety, and a jobs-housing balance. www.ci.chula-vista.ca.us/City_Services/Development_Services/Planning_Building/General_Plan/documents/05_LUT_S5to7_000.pdf

Marin County's draft socioeconomic element (2007) includes goals related to community participation, culture, public safety, and a public health section with goals related to physical activity, access to healthy foods, substance abuse, affordable senior housing, and affordable health care. www.co.marin.ca.us/pub/fm/CWP05_WEB/CWP_SE_Element.pdf

Richmond will include a health policy element in its general plan update (2008). The California Endowment granted the city funding to address health in its general plan update, which will likely address physical activity, access to healthy foods and health care, economic opportunity, affordable housing, neighborhood completeness, and crime prevention. www.cityofrichmondgeneralplan.org

South Gate intends to include a public health and safety element in its general plan that will focus on physical activity, safety around schools, pedestrian safety, nutrition, and air pollution. The general plan also includes a "green city" element that focuses on creating a network of green infrastructure including parks and open spaces, and a community design element that focuses high-density mixed-use development at transit corridors.

Walnut Creek's quality of life element (2006) contains goals related to neighborhood character, local economy, the arts, community services, accessibility, health care access, and recreation. www.ci.walnut-creek.ca.us/pdf/GP.2025/Chapter2%20_Qol040406.pdf

Integrated Health-Related Language

Azusa's general plan (2004) contains a number of integrated, well-illustrated elements, including a chapter on the built environment that prioritizes walkability, street connectivity, and mixed use. www.ci.azusa.ca.us/planning/general_plan.asp

Oakland's general plan (1998) contains an integrated land use and transportation element with particular area plans and emphasis on infill, while the city's bicycle master plan (1999) and pedestrian master plan (2002) were adopted more recently. www.oaklandnet.com/government/ceda/revised/planningzoning/StrategicPlanningSection

Paso Robles' general plan (2003) includes detailed land use and circulation elements that prioritize walkability, mixed use, and development along a transportation corridor. www.prcity.com/government/departments/commdev/planning/general-plan-final.asp

Sacramento's vision for its general plan update (2008) is to make the city "the most livable in America," including walkability, tree canopy, integrated affordable housing, and crime prevention through environmental design. www.sacgp.org/GP_Documents/Vision/SacGP_Vision_and_GPs_Adopted_11-22-05_text-only.pdf

Ventura's general plan (2005) takes an explicitly holistic approach toward health, setting goals related to walkability, transportation safety, and civic engagement in different elements. www.ci.ventura.ca.us/depts/comm_dev/generalplan/final

Watsonville's general plan (2006) contains new health goals in several elements. The land use element includes a goal to help convenience stores carry fresh produce. The transportation and circulation element includes the goal of providing bus access to grocery stores. The plan also includes goals to work with local organizations to support nutrition and exercise-related activities, the farmers' market, and community gardens in a section titled "A Diverse Population." www.ci.watsonville.ca.us/departments/cdd/general_plan%5Cwatsonvillevista.html

Using Standards to Implement Health Goals

The most important issue to consider when developing health policy language for a general plan is the ability to implement it. Communities should set specific, measurable benchmarks: for example, setting a walkability standard of a quarter-mile (to neighborhood-serving facilities like the nearest transit stop or park) will have more effect than simply articulating the desire for more walkable communities.

Establishing specific standards can be problematic, however, in that they may not be precise or targeted enough for the objective they are intended to serve. For example, a city with a goal of promoting “walkable” access to parks and recreation facilities may require all households to be within a quarter-mile radius of a park. But a quarter-mile as the crow flies may be far closer than the actual distance a resident has to walk, if pedestrian barriers such as incomplete streets, low street connectivity, or freeways impede pedestrian access. Local governments will need to consider such situations and possibilities when elaborating indicators and targets.

Another difficulty with health standards is their potentially unanticipated health consequences. For example, on-street parking may calm traffic and improve pedestrians’ walking experience, but it can also increase the number of child-pedestrian injuries if children dart between parked cars. Creating standards also requires reconciling potential health trade-offs. For example, developing a new grocery store may improve food access and increase the number of residents who can walk to the store, but it can also increase neighborhood automobile traffic with corollary increases in air pollution and injuries. In older neighborhoods with few parks and recreational areas, the only accessible land available for creating new facilities may be close to a freeway – a major source of air pollution. A single standard for park accessibility or for park distance from freeways does not help planners weigh the value of increased exercise and physical activity against the increased exposure to air pollution.

These dilemmas do not undermine the value of developing health standards. But they do argue for regularly monitoring environmental conditions and health outcomes, and for getting the community involved in setting priorities

and choosing among competing health values. Routine audits and impact assessments will be essential for identifying best practices and refining the emerging discipline of health planning, and they will help in developing mechanisms for mitigating the negative health impacts of development. However, data may still not be available to resolve which action is *healthier*.

Developing health standards can be stressed in the vision of a general plan and achieved as communities experiment with different approaches to measuring the connection between health and the built environment.

Glossary of General Plan Terms

Goals: Broad or general outcomes that will be achieved through the implementation of the general plan, which can be supported by an evidence-based rationale. *Example: The city/county will support walkable streets and neighborhoods.*

Objectives: More specific than goals, objectives describe an (ideally measurable) end state. *Example: Ensure that all neighborhoods have well-maintained, well-lighted pedestrian facilities.*

Policies: Statements that set out standards and guidelines to inform decisions made by city staff, the planning commission, and local elected officials on an ongoing basis. *Example: Prioritize the development of safe, well-maintained walking routes along streams, rivers, and waterfronts.*

Standards/Targets: Numeric targets that define a desirable level or value of an indicator. (Standards can also serve as policies.) *Example: All households are within a quarter-mile of a recreational facility.*

Plans/Programs/Actions: Governmental acts taken in pursuit of a goal. *Example: A zoning ordinance provides for mixed residential and commercial use along a neighborhood commercial corridor.*

Indicators/Baselines/Benchmarks: Measurable ways to assess progress toward a goal. A baseline provides a current measurement of a given indicator against which future progress can be measured; a benchmark sets a target for an indicator upon implementation of the general plan's goals and policies. *Example: A certain percent of households living within a quarter-mile of a recreational facility, with a targeted percentage increase "benchmark."*

SECTION IV

Model Health Language

Model Health Language

The following health language is meant to serve as a model for a range of health policies that communities may want to consider adopting in local land use plans, especially general plans. The language is organized by health issue (e.g., easy access to nutritious foods for all residents) as opposed to general plan element (e.g., land use, circulation).

Public health practitioners and advocates should work with local planners or general plan consultants to discuss where best to include policies that address the health issues outlined here. While some communities' health goals and policies may warrant a dedicated health element, these goals also must be integrated holistically into the other elements of their general plan.

The goals and policies listed here are designed to provide *ideas* for health issues that can be addressed by general plans – they are meant to be tailored to a local jurisdiction's health needs. Users should avoid a “copy-and-paste” approach to developing policy language.

Goals and policies need to reflect local conditions in order to be implemented. An analysis of existing conditions will help reveal not only the most pressing local health issues, but also opportunities and constraints presented by the built environment. Additionally, existing urban form, development patterns, and priorities will shape goals and policies: for instance, a walkability standard of a quarter-mile to the nearest park or grocery store may be impractical in rural areas but appropriate in urban settings.

Suggestions for specific implementation programs, standards, or strategies for achieving goals are provided in italics.

Vision

The vision of a general plan articulates the overarching goals and priorities of the plan, and sets a tone for the entire document.

Vision

This community is committed to promoting the health and well-being of all its residents. We strive to be an active, inclusive, and responsive city/county, where healthy habits are encouraged rather than discouraged by the environments we build.

Achieving this vision requires acknowledging previously ignored links between built environments and health, particularly the influence that patterns of land use, density, transportation strategies, and street design have on chronic diseases and health disparities.

Goal

This goal could be incorporated into all elements of a general plan.

Goal 1: Foster all residents' health and well-being.^{1,2}

Objective 1.1: Build relationships and implement procedures that make community health a priority for the community.

Rationale: Evidence increasingly shows that built environments influence chronic as well as infectious/acute diseases, and the city/county's police power exists for "the promotion and maintenance of the health, safety, morals, and general welfare of the public."

Goal 1 Policies

Policies in support of Goal 1 could be incorporated into the general plan vision section, the land use element, and a health element.

Policies

- Develop regular channels of communication and collaboration between local health officials and planners, through design review and/or other means of ongoing feedback and input
- Establish procedures to track community health information systematically and in ways appropriate for use in built environment decisions
- Integrate health concerns and rationales throughout each element of the general plan and set measurable health goals
- Review and select an appropriate method for regular Health Impact Assessments (HIA) for future policies and developments
- Model best practices related to promoting healthy communities at government offices and government-organized events
- Adopt a mission statement or slogan that emphasizes the community's value for health and well-being

Goal 2 Policies

Policies in support of Goal 2 could be incorporated into the general plan's vision section.

Goal 2: Work collaboratively with the community to develop and achieve the general plan's vision for a healthy community.³

Objective 2.1: Provide opportunities for participation in the city's planning process.

Rationale: Community participation in planning processes builds social capital; engaging community members in identifying and prioritizing healthy development opportunities and constraints will contribute to a more robust and sustainable plan.

Policies

- The participation of individuals, organizations, and businesses in supporting community health and the planning process is encouraged
- Sponsors of development or other major projects in the city that will affect the health of the community should initiate early and frequent communication with community residents
- Local government agencies, including planning and public health, will work collaboratively with neighborhood associations and other similar organizations to address health issues of concern in neighborhoods
- Regular updates will be provided about the progress of general plan implementation and other planning-related activities through a variety of mechanisms, such as the city website, flyers in utility bills, or local newspapers
- A yearly town hall meeting will provide regular updates on major city/county activities and the extent to which the city/county is meeting the guiding principles established in the general plan, including those related to health

Goal 3: Create convenient and safe opportunities for physical activity for residents of all ages and income levels.

Objective 3.1: Ensure that residents will be able to walk to meet their daily needs.

Rationale: Residents of walkable neighborhoods are more likely to achieve the recommended amount of daily exercise.

Policies

- Set a walkability standard (*e.g., a quarter- to half-mile*) for residents’ access to daily retail needs and nearest transit stops
- Adopt mixed-use residential, commercial, and office zoning where appropriate to encourage walkability
- Work with school boards to encourage walkable school sites; encourage reuse of existing school sites; work to develop a proximity standard for students access to school facilities (*e.g., half- to one mile*)
- Adopt sufficient density minimums for residential, commercial, and retail development to ensure development that supports transit and walkable environments (*as opposed to density maximums*)
- Support walkability audits to identify inconvenient or dangerous routes and prioritize infrastructure improvements in communities with the most need (See Objective 3.3 for more) (*adopt a Safe Routes to School program, conduct walkability and bikability audits to identify opportunities and needs*)
- Adopt roadway design guidelines that enhance street connectivity
- Ensure that pedestrian routes and sidewalks are integrated into continuous networks
- Encourage commercial buildings with open stairs and pleasant stairwells

Goal 3 Policies

Policies in support of Goal 3 could be incorporated into land use, circulation, and open space elements.

Objective 3.2: Build neighborhoods with safe and attractive places for recreational exercise.⁵

Rationale: Walkable access to recreational facilities substantially increases their use.

Policies

- Set a walkability standard (*e.g., a quarter- or half-mile*) for residents' access to recreational facilities
- Pursue joint-use agreements to share facilities with schools, especially in neighborhoods that suffer a disproportionate lack of recreational facilities⁶
- Identify opportunities to increase acreage of total recreational areas (*e.g., convert old railroad right-of-ways to bicycle trails, utilize public easements for community gardens, prioritize new parks in underserved or low-income communities*)
- Prioritize the development of safe, well-maintained walking routes along streams, rivers, and waterfronts (see Objective 5.3)
- Establish and fund a high level of service standard for parks (*e.g., cleanliness, lighting*)

Objective 3.3: Create a balanced transportation system that provides for the safety and mobility of pedestrians, bicyclists, those with strollers, and those in wheelchairs at least equal to that of auto drivers.⁷

Rationale: Car traffic and parking can discourage other more healthful uses of streets and land. Poor design contributes to pedestrian/bicyclist and vehicle collisions, yet very often transportation engineers focus primarily on achieving level of service standards for cars.

Policies

- Establish design guidelines and/or level of service standards for a range of users, including access for disabled and bicyclists (*e.g., complete streets guidelines; universal design principles; facilities such as sidewalks, lighting, ramps for wheelchairs and bicycles; parking in rear of buildings; windows that face the sidewalk/street*)
- Use traffic calming techniques (*e.g., medians, refuges, street trees, on-street parking*) to improve street safety and access
- Require transportation engineers to meet level of service standards for pedestrians and cyclists in addition to those established for cars (*e.g., sidewalks, crosswalks, bike lanes*)
- Require a dedicated portion of the transportation budget to go to pedestrian and cyclist amenities
- Prioritize attention to transportation traffic around schools (*funding available through the CalTrans Safe Routes to School program*)
- Supplement funding for “complete streets” or Safe Routes to School program with additional funding mechanism (*e.g., portion of sales tax*)
- Require developers to build facilities for walkers, bicyclists, and wheelchairs in all new developments (*e.g. sidewalks, ramps, bicycle racks, showers*)

- Reduce parking requirements for developments that locate near transit (*e.g., within a quarter-mile of a transit stop*) and that provide walking, biking, and disability access facilities
- Establish parking maximum (*rather than minimum*) requirements

Goal 4. Provide safe, convenient access to healthy foods for all residents.⁸

Objective 4.1: Provide safe, convenient opportunities to purchase fresh fruits and vegetables by ensuring that sources of healthy foods are accessible in all neighborhoods.

Rationale: Low-income neighborhoods suffer from disproportionately lower access to food retail outlets that sell fresh produce and disproportionately higher concentrations of fast food and convenience stores; when people have the option to choose fruits and vegetables, they do.

Policies

- Identify grocery access as a priority for economic development (*give responsibility for food retail attraction and development to a specific governmental department, such as community and economic development*)
- Establish a walkability standard (*e.g., a quarter- to half-mile*) for access to retailers/sources of fresh produce (*e.g., grocery stores, green grocers, farmers' markets, community gardens*) (*could be applied only to new development and redevelopment, or could require that all neighborhoods that do not meet this standard be targeted for healthy food development incentives*)
- Utilize existing economic development incentives and/or create new incentives to encourage stores to sell fresh, healthy foods such as produce in underserved areas (*e.g., tax breaks, grants and loans, eminent domain/land assembly, conditional use zoning, dedicated assistance funds for infrastructure improvements such as refrigeration and signage*)
- Identify appropriate sites for farmers' markets (*e.g., municipal parks, street closures*) and drop-off sites for community-supported agriculture "shares" (direct marketing between farmers and consumers), and prioritize those uses in appropriate locations (*create specific zoning ordinances that define these uses and identify where they are most appropriate/needed*)
- Encourage farmers' markets to accept credit and food stamp Electronic Benefit Transfer (EBT) cards; Women, Infants, and Children (WIC) benefits; and Senior Farmers' Market Nutrition Program benefits (*e.g., require all farmers' markets in a jurisdiction to accept food stamps and other public benefits through definition in zoning code, provide technical assistance and support to farmers' markets to ensure their ability to accept public benefits*)
- Work with local transit agencies to ensure that bus routes provide service from underserved neighborhoods to healthy food retail outlets
- Link efforts to protect local farmland with the development of diverse markets for local produce (*e.g., community-supported agriculture programs, farmers' markets, farm-to-institution programs, grocery stores, restaurants*)

Goal 4 Policies

Policies in support of Goal 4 could be incorporated into land use, circulation, housing, open space, air quality, parks and recreation, safety, and economic development elements.

- Provide fast-track permitting for grocery stores in underserved areas
- Prevent restrictive covenants that keep new grocery stores from using a competitor’s abandoned site

Objective 4.2: Encourage healthy eating habits and healthy eating messages.

Rationale: Information about nutrition helps residents make healthier food choices.

Policies

- Disseminate information about healthful eating habits (*e.g., Champions for Change Campaign*)
- Serve only food consistent with dietary guidelines (*e.g., Dietary Guidelines for Americans*) in government-owned buildings/hospitals and at government-organized events
- Encourage or require restaurants to post nutrition information for menu items
- Offer incentives/publicity for restaurants that adopt menus consistent with dietary guidelines and/or serve locally grown foods
- Encourage restaurants to participate in a voluntary ban on trans fats
- Consider restricting outdoor advertisements (*e.g., limiting location, size, or density*) throughout the jurisdiction or in certain geographic areas (*e.g., around schools*)
- Consider charging stores a fee for the privilege of selling low-nutrient foods; the fee would fund activities aimed at mitigating the harmful health effects of these foods

Objective 4.3: Avoid a concentration of unhealthy food providers within neighborhoods.⁹

Rationale: People choose among foods that are readily available; healthy options should be at least as available and accessible as unhealthy options.

Policies

- Prioritize healthy food development incentives in areas with a high ratio of convenience, fast food, and liquor stores (see Objective 4.1)
- Consider limiting the number or concentration of “formula” restaurants via zoning ordinance
- Ban or limit drive-through food outlets, or those within certain geographic areas (*e.g., around schools*)
- Restrict approvals of new liquor stores or other retailers that sell alcohol for off-site consumption, in target areas (*e.g., high crime areas, near schools*)
- Identify fast food restaurants, liquor, and convenience stores as “conditional uses” only; instate conditional use review upon lease renewal or at point of business sale

Objective 4.4: Provide ample opportunities for community gardens and urban farms.¹⁰

Rationale: Community gardens help increase the availability and appreciation for fresh fruits and vegetable, in addition to providing an opportunity for exercise, green space, and a place for community gatherings

Policies

- Encourage the use of vacant lots for community gardens (*e.g., allow community gardens as a use in all zones, create specific “community garden” zoning regulation, protect gardens from confiscation, provide free water/trash collection*)
- Identify and inventory potential community garden/urban farm sites on existing parks, public easements and right-of-ways, and schoolyards, and prioritize site use as communities gardens in appropriate locations
- Consider setting a community garden standard (*e.g., at least one community garden for every 2,500 households*)
- Offer residents such classes as gardening or composting, or support a community-based organization to do so; prioritize classes in neighborhoods that lack access to healthy foods and/or green space
- Encourage or require all new building construction to incorporate green roofs (*could limit to multifamily residential, commercial, or civic*), and encourage conversions of existing roof space to green roofs, in order to maximize opportunities for gardening

Objective 4.5: Preserve regional agriculture and farmland as a source of healthy, local fruits and vegetables and other foods, and connect local food markets to local agriculture.¹¹

Rationale: Preserving and protecting local farmland creates opportunities to link consumers to sources of fresh, healthy food and can improve local food access.

Policies

- Protect agricultural land from urban development except where the general plan land use map has designated the land for urban uses (*establish green belts or agricultural buffers around urban land; require developers to place lands within this buffer into permanent agriculture land trusts or other agricultural easements*)
- Support strategies that capitalize on the mutual benefit of connections between rural economies as food producers and urban economies as processors and consumers (*e.g., developing farmers’ markets and other markets for local foods*)
- Assess and plan for local food processing/wholesaling/distribution facilities to connect local agriculture to markets such as retailers, restaurants, schools, hospitals, and other institutions (*e.g., protect areas zoned for industrial use from being zoned for other uses such as commercial or residential; attract and retain local food processing/wholesaling/distribution firms through economic development incentives such as land assembly, streamlined permitting, and tax breaks*)

Goal 5 Policies

Policies in support of Goal 5 could be incorporated into land use, circulation, housing, open space, parks and recreation, noise, air quality, and safety elements.

Goal 5: Pursue a comprehensive strategy to ensure that residents breathe clean air and drink clean water.¹²

Objective 5.1: Reduce residents' reliance on cars.

Rationale: Motor vehicles are often the principle contributors of particulate matter, nitrogen oxides, and ozone, which contribute to asthma and bronchitis. Roads and parking lots comprise most of the impervious surface in a metropolitan area, leading to water-contaminating run-off, with auto leaks and emissions contributing the most non-point-source pollution in this run-off.

Policies

- Adopt mixed-use residential, commercial, and office zoning where appropriate to encourage walkability
- Establish density minimums for residential, commercial, and retail development to ensure development that supports transit and walkable environments (see Objective 3.1)
- Build and maintain safe, pleasant streets for walking and bicycling (see Objective 3.3)
- Work with regional authorities to improve transit service linking residents with destinations (*such as jobs and retail*), especially in underserved neighborhoods
- Prioritize new infill development near transit nodes
- Support business districts outside of city centers that are well served by public transit facilities
- Utilize parking restrictions to deter car use (*e.g., parking requirement maximum rather than minimum, congestion pricing*)

Objective 5.2: Protect homes, schools, workplaces, and stores from major sources of outdoor air pollution.

Rationale: Populations in close proximity to noxious land uses are more vulnerable to respiratory diseases and cancers.

Policies

- Locate stationary emitters (*e.g., incinerators, factories, refineries*) away and downwind from homes and schools
- Locate sensitive uses, such as schools and family housing, at least 500 feet from highways
- Plan truck routes that avoid neighborhoods and schools
- Minimize the pollution associated with stop-and-go traffic by implementing traffic calming techniques (*e.g., replacing stop lights, stop signs, and speed bumps with chicanes, narrower streets, or modern roundabouts*)
- Adopt a policy to purchase fuel-efficient/low-emission vehicles for government fleet

- Incentivize energy conservation and waste reduction by businesses and residences
- Increase safe household hazardous waste disposal programming and outreach
- Evaluate sanitation guidelines and codes to permit and support efforts that reduce the seepage of human waste into nonagricultural water
- Explore the feasibility of new ordinances that would eliminate exposure to secondhand smoke by creating smoke-free environments for all workplaces, multi-unit housing, and outdoor areas such as parks, dining areas, service lines, and other public gathering places

Objective 5.3: Prioritize “greening” efforts to keep air and water clean.

Rationale: Trees and other vegetation slow erosion and filter pollutants from water and air while reducing the heat island effect and ozone formation.

Policies

- Identify protecting and developing tree cover as a priority (*set a target for street tree canopy cover in new development and/or in areas identified as tree-deficient*)
- Preferentially plant female street trees to reduce pollen, especially in the most populated areas
- Prioritize natural filtration (as opposed to impermeable hardscaping) along stream and river banks (see Objective 3.2)
- Update the building code to support compliance with “green building” practices
- Provide fast-track permitting for projects that implement “green building” design and construction
- Encourage or require all new building construction to incorporate green roofs (*could limit to multifamily residential, commercial, or civic*), and encourage conversions of existing roof space to green roofs, to reduce heat island effect and mitigate contaminated water drainage into streams
- Develop standards for approving rainwater harvesting systems (*identify responsible government agency, such as the public health department*)
- Foster the growth of environmentally friendly agricultural business and industry by encouraging sustainable practices such as organic farming

Objective 5.4: Promote healthy indoor air quality.

Rationale: People spend about 90 percent of their time indoors, yet indoor air quality is not as well regulated and can be worse than outdoor air quality.

Policies

- Identify improving indoor air quality as a priority in the “open space” or “air quality” element

Goal 6 Policies

Policies in support of Goal 6 could be incorporated into land use, circulation, housing, open space, and safety elements.

- Explore the feasibility of new ordinances that would eliminate exposure to secondhand smoke by creating smoke-free environments for all workplaces and multi-unit housing (see Objective 5.2)
- Promote green building practices that support “healthy homes” (*e.g., use materials with low-VOC emissions, windows for natural light, and heating with minimal need for furnace-combustion*)
- Disseminate information about methods for reducing mold growth
- Enforce standards for mold mitigation
- Encourage radon inspections in geologically at-risk locations
- Maintain rigorous efforts to prevent insect and rodent infestation, reducing vectors for disease and sources of asthma-inducing allergens before requiring hazardous pesticides
- Augment support for existing lead abatement programs

Goal 6. Encourage neighborhoods that sustain mental health and promote social capital.¹³

Objective 6.1: Prioritize affordable housing and the ability to live near work.

Rationale: Too often affordable housing is either far away from a person’s work and/or concentrated in areas of poverty. Long commutes are associated with personal stress and neighborhoods with little cohesion, while concentrations of poverty expose residents to environmental health risks and exacerbate health disparities.

Policies

- Strive to eliminate residential segregation and concentrations of poverty by promoting affordable housing that is integrated into mixed-income neighborhoods (*e.g., adopt inclusionary housing requirements*)
- Balance commercial and residential development (jobs and housing) within [neighborhoods/city/county] to reduce the number of people who must commute a long distance of work; prioritize commercial/economic development strategies that match jobs to existing residents’ skills and employment needs
- Remove obstacles to cohousing and other nontraditional housing types (*e.g., zoning that allows “granny flat” additions*)
- Provide a range of house types and affordable housing units around schools

Objective 6.2: Support cohesive neighborhoods and lifecycle housing to promote health and safety.

Rationale: Social connections are correlated with lower stress, reduced risk of cardiovascular disease, and faster recovery for illness or injury. People experience less stress when they feel in control of their environment.

Policies

- Maintain neighborhood continuity by targeting new affordable housing developments for existing residents

- Support healthy aging in place and childhood development by promoting safe, “complete” streets (see Objective 3.3) and a range of housing types and affordability within neighborhoods
- Promote housing practices that support aging in place (*e.g., universal design, multiple housing types available within neighborhoods*)

Objective 6.3: Build diverse public spaces that provide pleasant places for neighbors to meet and congregate.

Rationale: Pleasant streetscapes are associated with more social connections, lower stress, and greater pedestrian safety, and public space provides opportunities to build community.

Policies

- Develop and implement street design guidelines that create walkable, pleasant environments (*e.g., traffic calming, street trees, lighting, well-maintained sidewalks and benches, front porches on residential developments*) (see Objective 2.3)
- Identify street trees as an important technique for stress- and crime-reduction (see Objective 5.3)
- Implement walkability and level of service standard for parks and recreation areas (see Objective 3.2)

Objective 6.4: Pursue an integrated strategy to reduce street crime and violence.

Rationale: Violence is a significant threat in some neighborhoods, while fear of violence causes great stress and deteriorates the pedestrian/bicycle environment. Better design can reduce the opportunity for (and fear of) street crimes.

Policies

- Support community policing, neighborhood watch, and walking/biking police patrols that engage community residents
- Adopt street design guidelines that incorporate strategies for Crime Prevention Through Environmental Design (CPTED) (*e.g., “defensible space,” “eyes on the street,” and pedestrian-friendly lighting*) without creating barriers that disconnect neighborhoods
- Consider limiting approvals of new liquor stores in target areas (*e.g., in high-crime areas, areas of overconcentration, near schools*) (*could use conditional use zoning as mechanism*) (see Objective 4.3)
- Utilize nuisance enforcement to close liquor stores that fail to operate in a way that upholds community health, safety, and welfare
- Pursue a graffiti abatement program to clean up residential and commercial properties

Goal 7 Policies

Policies in support of Goal 7 could be incorporated into land use and circulation elements.

Goal 7. Locate health services throughout the community and especially close to those who need them the most.

Rationale: Easy access to health services is vital for helping residents prevent illness before it arises or worsens.

Policies

- Make it a priority to provide a range of health services (*e.g., primary, preventative, specialty, prenatal, and dental care, and substance abuse treatment and counseling*) in locations that are accessible to community residents
- Locate new clinics with a goal of creating walkable access for a majority of users' trips (*map total clinic visits by neighborhood origin of patients*)
- Work with local transit agencies to develop transit routes that connect residents to health service facilities, especially in the most underserved neighborhoods
- Provide free shuttle service to health services for those who require it or who live in underserved areas

1 For good examples of broadly oriented health language, see Ventura's general plan and Benicia's health element.

2 The Healthy Development Measurement Tool (HDMT) is a good collection of health-based rationales and findings, as well as measurable health-oriented standards, available at www.TheHDMT.org.

3 South Gate's general plan includes language on citizen participation in the general planning process (not specific to health-related policies).

4 See the general plans for the cities of Ventura, Sacramento, Azusa, and Oakland.

5 See Ventura's park standard, and Richmond's forthcoming park standard.

6 Note that cities and counties do not have legal jurisdiction over schools, but they can enter into joint use contracts with schools.

7 See the general plans for Marin County and Azusa, as well as San Jose's traffic calming guidelines.

8 See the general plans for Chula Vista, Marin County, and Oakland.

9 See Calistoga's restrictions on "formula" restaurants, and Carmel-by-the-Sea's restrictions on liquor stores.

10 See Seattle's community gardens standard.

11 See Davis' general plan (chapter 15, Agriculture, Soils and Minerals) for policies on agricultural preservation (does not include a health and nutrition rationale). The city of Madison's comprehensive plan includes policies supporting rural-urban market connections.

12 The Sacramento Air Quality Management District has written a model air quality element (<http://airquality.org/lutran/ModelAQElement.pdf>). Concord has adopted language in its general plan to eliminate exposure to secondhand smoke. See Ventura's general plan for its goal to reduce vehicle miles traveled, and Seattle's "healthy homes" effort to improve indoor air quality.

13 See San Francisco's support for inclusive public housing and the San Francisco Department of Health's Healthy Development Measurement Tool, which include support for HDMT citizen participation and affordable housing. See Sacramento's design guidelines for mitigating crime, and Benicia's general plan language emphasizing mental health.

SECTION V

Implementation Plans, Programs, Policies, and Standards

As discussed earlier, writing a more health-oriented general plan must include ways to ensure that the goals are implemented. Establishing indicators to measure progress toward the goals is important, but it's only one of a number of strategies to ensure full implementation.

The most important document related to general plans is the **zoning ordinance**, which legally must derive from the goals in the general plan. It is primarily through zoning that communities control the mix and density of uses, and by which they can orient development around transit.

Perhaps the second-most important document related to general plans is a community's **roadway plan**, which maps out street details and circulation priorities. Both zoning and transportation policies can include design guidelines shaping a range of physical characteristics within a community.

Beyond these two primary implementation measures, local governments can also devise **master plans** to set priorities for to communitywide planning for recreational amenities such as parks or urban forests; offer **grants or incentives** to shape the distribution of healthy food retailers; enforce **building codes** or **offer incentives** for health-related standards during the **permit review process**; and impose **taxes or fees** to fund health-promoting infrastructure.

Notably, some of the implementation tools discussed in this section may be used on their own – without explicitly supportive general plan policies – as opportunities to bring about change within a community. Remember, while the general plan provides the policy framework from which all other built environment decisions derive, health practitioners and advocates should still take advantage of other timely opportunities to promote healthy communities.

Zoning, Neighborhood Plans, and Development Standards

Zoning is the most fundamental regulatory tool cities and counties use to shape land use and the built environment. As such, it is a key strategy for enhancing community health and livability.

While specific development proposals may trigger zoning amendments on an ongoing basis, zoning ordinances are typically updated more comprehensively when a general plan update is under way. This means that health practitioners and advocates should be thinking during and beyond a general plan update about how zoning ordinances can be used to support health policies.

Zoning for Density, Mixed Use, and Transit Orientation

Many planners, particularly proponents of smart growth and new urbanism, view commonly applied “use-based” zoning codes as a regulatory barrier that prevents the design of more livable neighborhoods. By imposing low-density development with a separation of almost all uses, most local zoning ordinances encourage driving and air pollution, and discourage walking, biking, and transit access. By contrast, denser, mixed-use developments can promote physical activity, provide easier access to healthy food and other vital neighborhood services, and encourage community interactions.

Zoning ordinances can help ensure that residences are within walking distance from common destinations such as shopping areas, transit stops, and parks. They can also influence how much farmland is preserved at the urban edge, whether farmers’ markets and community gardens are permitted uses, and where grocery stores and fast food restaurants can be located. Zoning ordinances can help encourage affordable housing by allowing a mix of residential types (single-family, multifamily town house, and apartment) within a single neighborhood.

Beyond what might be restricted by a zoning ordinance, many municipalities offer “density bonuses,” which allow developers to build more housing units than would otherwise be allowable under existing zoning limits, in exchange for the development of affordable units.

Density, Mixed Use, and Transit Orientation Standards

Sample standards or ways to measure progress:

- ▶ Increasing the **percentage of residents who walk or bike to work**
- ▶ Reducing the community’s **per capita vehicle miles traveled (VMT)**
- ▶ Reducing the **metropolitan sprawl index** (derived from population density, land use mix, strength of downtowns, and street accessibility)
- ▶ Reducing the land-use **dissimilarity index** (a ratio of land uses in a given neighborhood compared with those of the whole community)
- ▶ Lowering the **retail food environments index** for a given neighborhood or region (the number of fast food outlets and convenience stores divided by the number of supermarkets, produce stores, and farmers’ markets)¹
- ▶ Decreasing the **food balance score** for a given block, census tract, or neighborhood (the distance to the closest grocer divided by the distance to the closest fast food restaurant)²
- ▶ Pursuing a **quarter-mile maximum** distance (a five-minute walk) between residential and commercial sites, especially food retailers who accept food stamps
- ▶ Pursuing a **half-mile maximum** distance between residential or commercial sites and a transit stop or bus line

Many communities have adopted ordinances for density and mix and transit-oriented development districts as parts of larger strategies to revitalize older communities and design more livable neighborhoods. Communities have also consolidated their land use and environmental regulations into unified development codes.

Form-Based Zoning

Increasingly, jurisdictions are adopting what are known as “form-based” zoning approaches to promote walkable, mixed-use, safe, and pleasant environments. In contrast to traditional zoning, form-based codes permit a wider range of *uses* of a property but restrict the *design* of buildings more specifically. In this way, jurisdictions can promote streetscapes that encourage walking and discourage crime, while giving developers more flexibility in mixing residential and commercial uses.


Example of design guidelines for a specific site

Watsonville Livable Community Residential Design Guidelines

4.3 Medium Density Infill Site



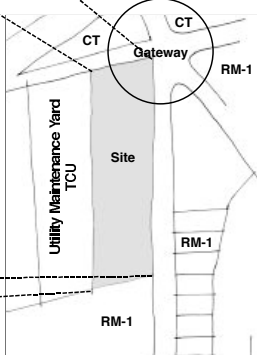
This RM-2 site is located in the Airport Road area. It is a corner site that can be developed as a gateway to the neighborhood. There are a variety of uses around the site including commercial, residential and a utility company yard area. The concept plan features:

- Single family units facing existing single family
- Secondary alley units over garages
- Two-story four flat building at the corner



Sketch of Alley Housing
Rear yard private open space, landscaping and trees

- Dormer windows
- Landscaped screen wall
- 6' fence, 48" opaque
- 40% of alley edge landscaped

Site Description

Zoning: RM-2
 Site Size: 560' x 165'
 Site Area: 92,400 SF (2.12 acres)
 Adjacent Zoning:
 RM-1
 TCU
 TC

Development Program Summary

Primary Single Family Units	9
Secondary Alley Units	7
Corner Flats	4
Total Units	20

Density: 10 DU/A

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Prepared by the City of Watsonville Community Development Department, with assistance by RACESTUDIO

Form-based codes focus on building type, dimensions, façade features, and the location of parking. They also pay special attention to the width of streets and the design of public spaces. They commonly include the following elements:

Regulating plan: a plan or map of the regulated area designating the locations where different building form standards apply, based on clear community intentions regarding the physical character of the area being regulated

Building form standards: regulations controlling the configuration, features, and functions of buildings that define and shape the public realm

Public space/street standards: specifications for the elements within the public realm (e.g., sidewalks, travel lanes, street trees, street furniture)

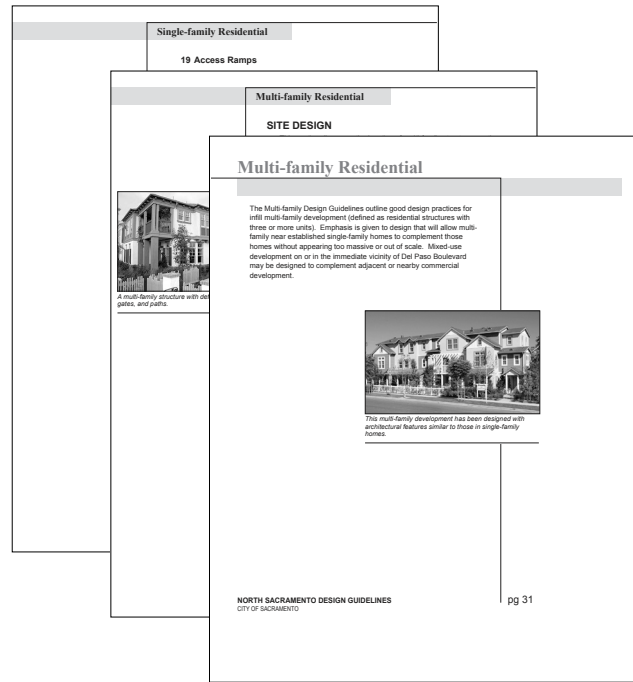
Administration: a clearly defined application and project review process

Definitions: a glossary to ensure the precise use of technical terms

Some form-based codes also include *architectural standards* (regulations controlling external architectural materials and quality) and *annotations* (text and illustrations explaining the intentions of specific code provisions).

Proponents argue that form-based codes have numerous advantages over use-based codes. They can be shorter, more visual, and easier for nonplanners to understand. As descriptions of the desired physical outcome, they can help people anticipate the end result of land use regulations – that is, actual physical buildings and development – more clearly and accurately. Form-based codes can replace existing design guidelines that rely on discretionary review panels and often produce inconsistent results. And in some already-urbanized places, the legal basis of form-based codes – the public good – may be more solid than traditional design guidelines, which often rely on aesthetic arguments.

Some detractors of form-based codes argue that “use still matters.” Ground-level retail stores can be especially effective at promoting a walkable environment, but developers may find it more profitable to preserve these areas for residential purposes. In other cases, the property may be used for controversial purposes, such as an auto-parts shop or check-cashing outlet. Jurisdictions may thus benefit by including some traditional use restrictions in an overall form-based code.



Examples of design guidelines for specific zones

Pollution Buffer Standards

Sample standards or ways to measure progress:

- ▶ Reducing the number of people who live or work within 300 to 500 feet of a freeway
- ▶ Reducing the percent of the population living within [x distance] of polluting industrial areas, based on local circumstances
- ▶ Reducing the number of schools, parks, day care centers, hospitals, shelters, and senior centers within [x distance] of a highly hazardous site, based on local circumstances

Liquor Store and Fast-Food Outlet Standards

Sample standards or ways to measure progress:

- ▶ Restricting new alcohol retail stores from locating in areas where their concentration is already twice the citywide average³
- ▶ Capping the number of fast food or “formula” restaurants (franchises or chains) or restricting new fast food or formula restaurants from opening⁴
- ▶ Restricting the number of billboards of any type within a quarter-mile of school property

Zoning a Pollution Buffer

Beyond promoting less car-reliant environments, zoning ordinances can also help communities separate residential uses from highways and other sources of pollution.

Separating polluting industrial sites from residential areas was an original rationale for zoning laws, but zoning restrictions can go further by limiting the amount of residential and commercial development near freeways (especially within 300 to 500 feet, where air pollution is the greatest).

Likewise, communities can create truck routes around neighborhoods, away from schools, hospitals, parks, and other sensitive uses.

Zoning Out Liquor Stores and Fast Food Outlets

Zoning ordinances can help reduce concentrations of liquor stores and fast food outlets. The presence of liquor stores is associated with neighborhood violence, and drive-through fast food outlets deteriorate the pedestrian environment. Both promote unhealthy nutritional choices.

Although the state government has the authority to license liquor stores, local governments have the authority to zone appropriate uses, including alcohol sales. In particular, zoning ordinances can limit the total number and density of liquor stores in an area, including setting a prohibitive buffer around schools or parks to protect the community from increased loitering and litter. Local governments can also zone new liquor stores as a “conditional use,” requiring them to close at certain hours or ensure that appropriate lighting is installed and that the storefront is free of litter and graffiti. Older stores can be similarly regulated through a “deemed approved” ordinance: in areas where there is already an over-concentration of off-site liquor retailers, local government can revoke “grandfathered” business licenses if that business is not operating in a way that upholds community health, safety and welfare. This tool may potentially be applied to existing small stores that carry only unhealthy products like liquor, tobacco, and junk food without offering healthy alternatives.

In low-income communities that suffer from disproportionately high rates of chronic diseases linked to unhealthy diets, reducing the availability of these types of food outlets (coupled with improving access to healthy foods) may be one strategy to improve community health. Fast food outlets can be restricted through “formula” (chain) restaurant or drive-through bans or restrictions. These restrictions may be applied to an entire jurisdiction or just within specific geographic areas, such as close to a school.

Many communities also may wish to reduce outdoor advertisements (such as billboards) for unhealthy foods, alcohol, automobiles, or other symbols of

unhealthy neighborhoods. However, specifically prohibiting a specific type of advertising is highly unlikely to withstand legal challenge due to the First Amendment. Communities can avoid legal missteps by restricting outdoor advertising on *all* subjects, without focusing on the content of any particular advertisement.

Efforts to Limit Liquor Stores and Formula Retail

Restrictions on Formula Retail

Carmel-by-the-Sea, in the mid-1980s, became the first city in the nation to ban “formula” restaurants, which it defined as those “required by contractual or other arrangements to offer standardized menus, ingredients, food preparation, employee uniforms, interior decor, signage or exterior design,” or any that adopt “a name, appearance, or food presentation format which causes it to be substantially identical to another restaurant regardless of ownership or location.” www.newrules.org/retail/carmel.html

Since then **Pacific Grove** and **Solvang** have also banned formula restaurants, while **Calistoga**, **Coronado**, and **Arcata** have imposed special review requirements or capped the total number permitted. Arcata’s city attorney wrote a memo on the legality of such caps, which have passed judicial scrutiny. www.newrules.org/retail/arcata.html#memo

In 2004 **San Francisco** passed an ordinance requiring neighborhood notification and approval from the planning commission for new “formula” retailers of any kind in most parts of the city. Note that San Francisco’s restriction does not exempt chain grocery stores – a health-promoting example of formula retail – which has led to a delay in approvals for grocery store development. www.newrules.org/retail/sanfran.html

Restrictions on Liquor Retailers

In 1994 **Oakland** passed a “deemed-approved” ordinance, allowing the city to hold alcohol retailers with older permits (granted under old state standards) to new standards. If neighbors report nuisances ranging from litter and graffiti to drug dealing and prostitution, the city can require the store to either eliminate the nuisances or face potential revocation of its operating permit. **Vallejo**, **Oxnard**, **San Diego**, and **San Francisco** have passed similar ordinances.

Conditional Use Permits

Land uses that affect community health, such as liquor stores and fast food outlets, can be zoned conditionally – that is, permitted only if certain specifications are met. This permitting process can increase scrutiny on uses that could potentially contribute to negative community health outcomes. For example, development within a designated area may be contingent on the inclusion of affordable housing units (for residential), the lease of some square footage to a grocery store (for mixed-use or commercial), the use of green-building techniques, and even the provision of community garden space. However, local governments should be cautioned not to create such restrictive conditions that they effectively prevent all development, rather than using this tool to improve neighborhood quality and livability.

School Siting

School boards, not city or county governments, have primary authority over school affairs, including where to locate new schools. But planners can work with school officials to make sure these schools are well situated and ensure they will be community assets.

School Siting Standards

Sample standards or ways to measure progress:

- ▶ Increase the proportion of children who walk to school at least once a week
- ▶ Pursue a quarter-mile standard for locating elementary schools near the majority of elementary school children



The current California state school siting guidelines call for parcels ranging in size from about six acres for elementary schools and more than 25 acres for high schools. While these guidelines do offer some flexibility, they nonetheless make it difficult to locate new schools within existing urban communities. As a result, school districts often choose to locate new schools on the urban fringe, where large contiguous tracts are available and land is less expensive.

Nationally and in California, there has been a shift from smaller, centrally located neighborhood schools to larger, consolidated suburban schools. Siting schools this way

perpetuates sprawl, increasing the burden on local governments to extend infrastructure and services further. More simply, however, it increases the average distance between homes and schools, limiting children's opportunity to walk or bike, and increases the amount of driving in the community. By some estimates, 30 percent of rush hour traffic in many locales consists of parents driving their children to school, while the proportion of children who walk to school in California has declined from 66 percent in 1974 to just 13 percent in 2000.⁵

To foster communication between school districts and land use planners, some California communities have developed interjurisdictional "joint-use agreements" that increase access to recreational facilities. Some communities also consider school siting in the land use and public facilities elements of their general plan. These documents can help a community dedicate itself to the following activities:

- ▶ **Working with school districts to site new schools in appropriate locations** that can be easily accessed by and integrated into the surrounding community. This is particularly important for elementary schools since they are smaller and generally serve local neighborhoods.
- ▶ **Rehabilitating and reusing older neighborhood schools before new schools are constructed**, recognizing that they can serve as community focal points and contribute additional opportunities for physical activity and recreation space.
- ▶ **Ensuring that new school sites are designed with continuous, predictable and safe sidewalks and bike paths** that present few barriers to walking and cycling.

Area Plans and Specific Plans

Area plans and specific plans are detailed plans for a small portion of the community. Both apply to a wide range of different geographic spaces, but area plans can be part of a general plan and have the same force of law. Specific plans are subservient to the general plan; they are an implementation tool typically used as part of a development agreement with a specific developer. Both, especially specific plans, are developed more frequently than general plans and can be used either to encourage the revitalization of existing areas of the city or as plans for undeveloped areas.

Specific plans allow for considerable flexibility to tailor land use standards and regulations to a specific neighborhood or area, so long as they are consistent with the general plan (although in practice, since specific plans are used as part of a development agreement, a general plan amendment typically accompanies their application). A specific plan can either replace a local government's zoning ordinance and design guidelines within the designated area, or provide standards that enhance existing regulations.

These smaller-scale plans provide an opportunity to address public health because they establish the land use mix, intensity of development, and location of community facilities. They also address street design, streetscape design standards, and (for undeveloped areas) the layout of the street network. A good tool for developing a community "sense of place," these plans are the progenitor of comprehensive form-based codes (see "Form-Based Zoning" earlier in this section). A creative and innovative specific plan may bridge the gap between monotonous urban development and a healthy, livable neighborhood.

Parking Requirements

The amount, cost, and location of parking has a tremendous impact on the quality of the built environment and the transportation mode choices that individuals make – e.g., whether to walk, bike, carpool, or take transit. This in turn has an impact on public health.

Plentiful and cheap parking encourages driving. In transit-intensive neighborhoods, it increases pollution and congestion, reduces safety and access for pedestrians and cyclists, slows public transit, and drives up business and housing costs.⁶ Parking that is ill-placed or poorly designed (e.g., surface lots at big box stores) can adversely affect the streetscape, discouraging pedestrian activity. Strategies to reduce both parking supply and demand are considered one approach to

Plentiful and cheap parking encourages driving and degrades the pedestrian environment.





Designating parking for car-share vehicles can encourage participation in the programs.

mitigate the negative health and environmental effects of traffic and congestion. Similarly, strategies to improve the placement of parking within an area or street environment can indirectly improve the walkability of a street.

Parking standards are typically included in the zoning code. Reducing the minimum amount of parking required for new developments and charging fair market prices for parking can reduce vehicle trips and volumes, resulting in direct and indirect public health benefits:

- ▶ Increased physical activity (walking and biking) due to increased public transit use, where transit is a feasible alternative to driving
- ▶ Improved air quality (and related health outcomes)
- ▶ Reduced traffic injuries and fatalities
- ▶ Reduced traffic-related noise and related stresses

Cities can use a variety of parking management tools to counteract the adverse impacts that overly generous parking requirements and below-market parking prices have on the built environment. For example:

Reduce parking requirements in the codes, especially for infill and transit-oriented development, where requirements are applied with consideration to specific geographic and demographic factors that affect parking demand at a particular location

Set parking maximums, limiting the maximum amount of parking capacity allowed at particular sites or within a particular area, particularly in growing commercial centers

Allow for shared parking arrangements where parking spaces are shared by more than one user or use

Provide or encourage commuter financial incentives, for example, parking cash-outs where commuters who are offered subsidized parking are also offered the cash equivalent if they use alternative modes of transportation

Allow on-street parking in pedestrian-rich areas instead of off-street parking in surface lots (on-street parking encourages lower traffic speeds on the street)

Locate surface parking behind or on the side of buildings to maintain a pedestrian-friendly streetscape

Encourage the development of auto alternatives, such as walking, biking, and transit, to reduce car use without a negative impact on commerce

Crime Prevention Through Environmental Design

Architectural features and streetscapes can be used to reduce both the opportunity and temptation for committing crimes. Crime Prevention Through Environmental Design (CPTED) includes three basic concepts: defensible space, eyes on the street, and fixing broken windows.

“Defensible space” is an area within which users feel safe because there are clear lines between their territory and public space. Typically it takes the form of enclosed edges – via fencing, landscaping, lighting, or the features of an atrium – that can delineate private property. Potential criminals are more likely to feel vulnerable or trapped in places that are more clearly not public. While some places have taken pains to “harden” building edifices – by putting bars over windows, building intimidating fences, or significantly limiting opportunities to enter a property – it is important not to create barriers to such an extent that they deteriorate the pedestrian environment. Similarly, a neighborhood of disconnected cul de sacs may make a criminal feel more trapped, but such street layouts create barriers to pedestrian and bicycle use.

Pedestrian environments are an important aspect of another primary concept of environmental crime prevention, “eyes on the street.” Urbanist Jane Jacobs coined this term to describe the natural community surveillance that people provide for each other in public spaces. Buildings that face onto the street, windows that prominently overlook the street, and appropriate pedestrian-scale lighting at night all heighten potential criminals’ awareness of being watched. Increasing the amount of pedestrian traffic with greater density and mix of uses, or by channeling pedestrian traffic along certain routes, also encourages the natural surveillance that prevents crime.

Crime Prevention Through Environmental Design (CPTED) Resources

See “Designs and Codes that Reduce Crime around Multifamily Housing,” a fact sheet from the **Local Government Commission** (www.lgc.org/freepub/land_use/factsheets/anti_crime_design.html).

Active Living by Design has an online resource center for design strategies that prevent crime, including recommended publications, organizations, and tools (www.activelivingbydesign.org/index.php?id=319).

- 1 Developed by the California Center for Public Health Advocacy (www.ccpa.org).
- 2 Developed by the Mari Gallagher Research and Consulting Group (www.marigallagher.com).
- 3 Proposed in the San Francisco Department of Public Health’s Healthy Development Measurement Tool (www.TheHDMT.org).
- 4 The city of Los Angeles has adopted an ordinance that establishes a moratorium on new fast food outlets in certain neighborhoods to allow the city time to develop a long-term plan for attracting healthy food options and restricting fast food. See www.lacity.org/council/cd9/cd9press/cd9cd9press16549545_12122007.pdf (last accessed 3/4/08).
- 5 California Department of Health Services, CALIFORNIA OBESITY PREVENTION PLAN, available at www.dhs.ca.gov/CAObesityPrevention/California%20Obesity%20Prevention%20Plan.pdf (last accessed 9/10/07).
- 6 Livable City, available at <http://livablecity.org/campaigns/parking.html> (last accessed 9/26/07).

Road Designs and Standards

Multimodal Roadway Plans

Transportation system design plays an important role in how we choose to get around and therefore in the amount of physical activity we get on a day-to-day basis. The key policy document for cities regarding transportation is the *roadway master plan*.

Too often, the roadway master plan focuses only on moving cars, paying little attention to the needs of other users. Furthermore, the roadway standards in the master plan frequently prescribe the construction of roadways that support driving, to the detriment of other users such as pedestrians, cyclists, and transit vehicles.

Roadway master plans present an opportunity to shift the focus away from efficient vehicular movement and toward smart growth and healthy, livable communities. What follows are some considerations to this end.

Level of service (LOS) standards traditionally measure the level of auto congestion, and as such, prioritize transportation projects that maintain the flow of auto traffic. Because of their focus on cars and trucks, an acceptable LOS may be achieved at the expense of walkability, bikeability, public safety, and mass transit service. (For example, typical approaches to improving LOS include widening roads and creating dedicated turn lanes, which cut off bicyclists' lanes and deter pedestrians trying to cross the street.) In addition, some LOS modeling for proposed projects relies upon traffic projections that are not modified to account for auto use reductions brought about by other anticipated smart growth developments.¹

Network and connectivity standards: Low street connectivity leads to traffic bottlenecks and congestion, and discourages walking. Establishing standards for better connectivity can improve walkability and encourage pedestrian activity.

Street standards have often made streets wider than necessary, to accommodate large trucks and emergency vehicles. Wider streets encourage faster driving and, when crashes occur, result in higher rates of serious injury

Multimodal Roadway Plans Standards

Sample standards or ways to measure progress:

- ▶ Map cyclist and pedestrian injuries
- ▶ Utilize a pedestrian injury forecasting tool²
- ▶ Improve the pedestrian environmental quality index³
- ▶ Establish and implement multimodal level of service standards

These illustrations depict one square mile of two very different street designs. Philadelphia's highly connected street network (left) offers a safer and friendlier environment for pedestrians than Irvine's conventional street design, which lacks connectivity.



Philadelphia, PA

Irvine, CA

Reprinted from *Great Streets*, by Allen B. Jacobs (MIT Press, 1993)

or fatality. Conversely, narrower streets enhance walkability, reduce traffic speeds, and reduce the severity of crashes when they occur. Existing wide streets can be narrowed by creating medians, widening sidewalks, and adding on-street parking and bike lanes.

Multimodal streets (or complete streets) provide facilities for all users – cars, trucks, bicycles, transit, and pedestrians. The extent to which each is emphasized can vary from street to street (and along a corridor), but all should include safe facilities for a variety of modes. All should also, at a minimum, include safe pedestrian facilities such as pedestrian crossings and sidewalks separated from the street.

Context Sensitive Street Design (CSSD) is an approach to roadway planning, design, and street operation intended to meet regional transportation goals (such as the movement of traffic) while respecting and enhancing neighborhood quality. CSSD respects traditional street design objectives for safety, efficiency, capacity, and maintenance while integrating community objectives and values relating to land use compatibility, livability, sense of place, urban design, cost, and environmental impacts.

Multimodal Level of Service Standards

The **Florida Department of Transportation** has developed a *Multimodal Transportation Districts and Areawide Quality of Service Handbook* (www.dot.state.fl.us/planning/systems/sm/los/pdfs/MMTDQOS.pdf), which includes guidance for developing and implementing level of service standards for pedestrians, cyclists, transit-users, and auto rivers.

The **Victoria (British Columbia) Transport Policy Institute** has written a *Transportation Demand Management Encyclopedia* (www.vtpi.org/tdm/tdm63.htm#_Toc121444875), which includes a section on measuring nonmotorized transportation conditions and examples of level of service standards.

Traffic Calming Strategies

Traffic calming refers to a set of design features and strategies used by urban planners and traffic engineers to slow down or reduce traffic, thereby improving safety for pedestrians and bicyclists (and improving air quality when traffic is reduced). Traffic calming creates physical and visual cues that encourage drivers to travel at slower speeds. The term *traffic calming* also applies to a number of transportation techniques developed to educate the public about unsafe driver behavior.

Some of the most common traffic calming strategies include traffic circles, speed humps, raised circles in the middle of intersections, curb extensions or “pinch points,” raised sections of road designed to reduce speeds, raised crosswalks, median islands, narrow streets, textured paving at intersections, and street trees and planting strips between sidewalks and the street.

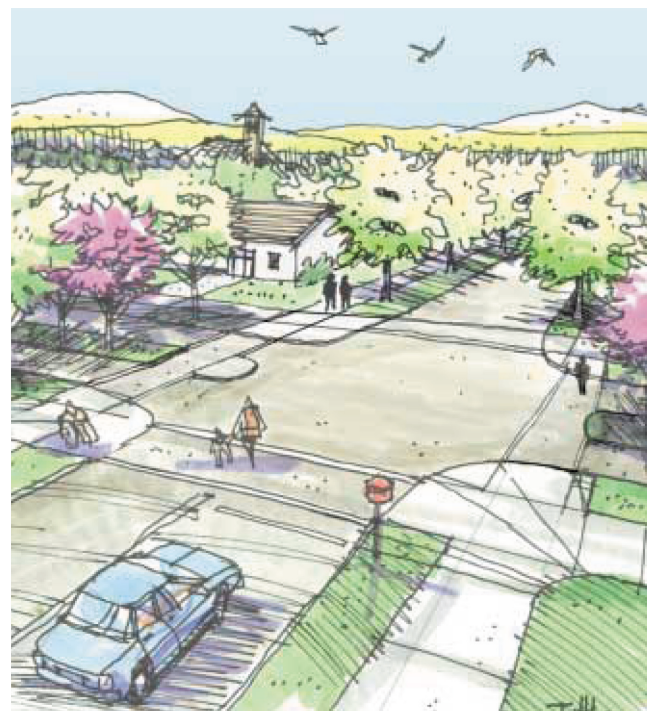
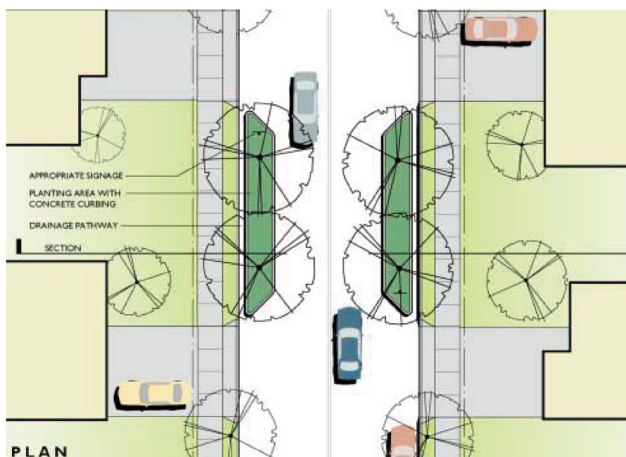
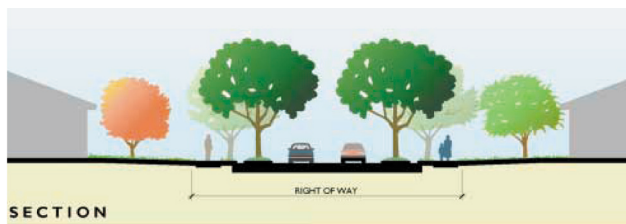
Traffic calming can be an effective way to reduce the incidence and severity of crashes. Other benefits can include reducing traffic-related noise, improving the aesthetics and liveliness of a street, and increasing neighborhood interaction.

Since each street and neighborhood is unique, the decision to adopt traffic calming measures should be considered on an individual basis. Traffic calming strategies can be integrated into bicycle and pedestrian master plans, though some cities have incorporated traffic calming policies into their general plans or implemented separate traffic calming programs or procedures.⁴

Traffic Calming and Emergency Response

Fire departments are often unwilling to support traffic calming measures, if narrow streets or turning radii cannot be navigated by modern fire engines or if speed bumps strain the engine's frame. But there are a number of traffic calming strategies that can work for emergency response vehicles. Work with fire department to design satisfactory compromises and test drive-throughs, use chicanes or staggered on-street parking along primary response routes, and favor speed cushions over speed bumps on smaller residential streets.

Example of traffic calming and streetscaping design guidelines



Drawings courtesy of the City of San Jose Department of Transportation

Traffic Calming Resources

San Jose's **Traffic Calming Toolkit** (www.sanjoseca.gov/transportation/forms/toolkit.pdf) explains the city's traffic calming program and provides a model for other communities seeking to implement traffic calming measures.

"Traffic Calming and Emergency Response" (www.lgc.org/freepub/PDF/Land_Use/fact_sheets/er_traffic_calming.pdf), a fact sheet from the Local Government Commission, provides guidance on various traffic calming measures and offers solutions to potential conflicts with fire departments.

1 Alameda County Transportation Improvement Agency, at 50, ALAMEDA COUNTYWIDE STRATEGIC PEDESTRIAN PLAN, DRAFT (2006).

2 Developed by the San Francisco Department of Public Health in tandem with the Healthy Development Measurement Tool.

3 *Ibid.*

4 Pedestrian Safety Guide and Countermeasure Selection System (Pedsafe), available at www.walkinginfo.org/pedsafe/pedsafe_curb1.cfm?CM_NUM=-4 (last accessed 9/10/07).

Master Plans

Pedestrian Master Plans

A safe, aesthetically pleasing, and comfortable pedestrian environment is key to encouraging people to walk. Hundreds of communities in North America have acknowledged the importance of creating walkable environments by developing pedestrian master plans.

Generally, pedestrian master plans represent a comprehensive framework to identify pedestrian needs and deficiencies, examining potential improvements and prioritizing implementation strategies. They can be developed for an entire city or for a specific area, such as a downtown. Often, they are coupled with bicycle master plans.

The goals of individual pedestrian master plans vary by jurisdiction. They may include:

- ▶ Improving pedestrian safety and access by:
 - ▷ minimizing exposure to collisions by reducing motor vehicle use
 - ▷ minimizing consequences of collisions by reducing vehicle speeds in key pedestrian areas
 - ▷ minimizing accident risk at busy intersection and along busy corridors
- ▶ Providing new or improved pedestrian amenities including streetscaping
- ▶ Improving the pedestrian environment for children, seniors and people with disabilities through universal design principles
- ▶ Promoting land uses that enhance public spaces and neighborhood commercial districts
- ▶ Educating community residents about the health benefits of walking, collision reduction, walking programs, or other related topics

Pedestrian Master Plan Standards

Sample standards or ways to measure progress:

- ▶ Increase the proportion of trips made by foot
- ▶ Utilize a pedestrian injury forecasting tool¹ with other pedestrian improvement measures to prevent injuries
- ▶ Map demand (pedestrian density) and supply (pedestrian facilities) with a tool such as Ped-GriD (Pedestrian Geographic Resources Information Database)²
- ▶ Measure the walkability of streets and trails with a pedestrian friendliness index³ and/or pedestrian environment factor⁴ (which assess sidewalks, ease of crossing streets, street and sidewalk connectivity, and terrain)

Bicycle Master Plans

Like walking, bicycling can be both a recreational activity and a safe, nonpolluting transportation option. Bicycle master plans set out a framework for creating a bicycle-friendly environment. The plans normally provide an overview of existing conditions, an analysis of needs and opportunities, proposed bike routes and improvements, and an implementation strategy.

Bicycle master plans present the opportunity to propose (and implement) concrete changes in the built environment. Concepts that could be incorporated into bicycle master plans include:

Creating a network of bicycle facilities throughout the city that link key destinations (bicycle facilities include multi-use trails, bicycle lanes on roadways, and “bicycle boulevards,” roadways that prioritize bikes through signage and traffic controls)

Working with neighboring cities to connect bicycle networks between jurisdictions

Cycling and walking events and activities, particularly on trails and cycling routes

Launching cycling commute campaigns, which often involve contests as to which workers and worksites commute most by nonmotorized modes

Establishing bicycle parking and clothes-changing facilities at worksites, transportation terminals, and other destinations

Implementing education programs that teach cycling skills

Creating safe bicycle parking throughout the city, particularly at key destinations such as workplaces, retail areas, parks, and schools

Bicycle and Pedestrian Master Plans

The **Sacramento Transportation and Air Quality Collaborative's** manual *Best Practices for Pedestrian Master Planning and Design* (www.sactaqc.org/Resources/Agreements/PedPlanningDesign.pdf) can serve as a guide for developing a pedestrian master plan.

Sample Plans

Alameda Countywide Strategic Pedestrian Plan (2006): www.acta2002.com/pdfs/pedplan/Ped%20Plan_0_Intro.pdf

Marin County Bicycle and Pedestrian Master Plan (2001): www.co.marin.ca.us/depts/pw/main/MarinCountyPlanCoverrev.cfm

Oakland Pedestrian Master Plan (1999): www.oaklandnet.com/government/Pedestrian/index.html

Oakland Bicycle Master Plan (2002):
www.oaklandnet.com/government/ceda/revised/planningzoning/MajorProjectsSection/BicycleMasterPlanDEIR.pdf

San Diego Pedestrian Master Plan (2006): www.sandiego.gov/planning/programs/transportation/mobility/pedestrian.shtml

San Diego Bicycle Master Plan (2002): www.sandiego.gov/planning/programs/transportation/mobility/bicycleplan.shtml

Parks and Recreation Master Plans/ Level of Service Standards

Access to parks and recreational facilities relates to physical activity levels and, by extension, to public health problems including rates of obesity, heart disease, and diabetes. *Access* refers not only to the location of parks and recreational facilities relative to homes and workplaces, but also to location relative to public transportation. It also refers to cost, hours of operation, and accessibility for vulnerable populations such as low-income residents and those with special needs.

Local governments can use parks and recreation master plans toward positive public health outcomes by eliminating disparities in access to facilities, improving the quality and safety of facilities, and expanding programs and partnerships. Parks and recreation master plans assess the current condition of park and recreation properties, generate and build community interest and participation, create a new and common vision for the future, develop a clear and solid set of recommendations and implementation strategies for programs and services, identify financing mechanisms, and suggest acquisition and/or rehabilitation of parks and facilities. Additionally, the plans can provide design guidelines and development standards for parks, open space, recreation facilities, and trails.

Though each local government needs to tailor its parks and recreation master plan to the community's specific needs, what follows are some general considerations when developing a parks and recreation master plan:

Create parks in neighborhoods. Parks located where people live provide accessible space for physical activity and green space for residents. Ideally each home should be located within a quarter-mile walking distance of a park and should not require crossing a major thoroughfare.

Create communitywide parks that spotlight unique facilities, natural features or landscapes, and open space. While neighborhood parks provide daily access for residents, parks of six to 60 acres can offer a wide variety of recreation facilities and amenities. These parks are designed for residents who live within a three-mile radius.

Promote joint use of public facilities for physical activity. Public agencies can work together to open facilities to the public – for instance, overcoming obstacles to using schools as recreation facilities outside of school hours.

Enhance the use of existing parks and recreational facilities. Fund a wide variety of programs during all hours of the day to serve all populations (including children, low-income families, the elderly, and people with physical disabilities or limited transportation), and improve the quality and character

of existing parks through lighting, signage, benches, tables, drinking fountains, and restrooms.

Establish a comprehensive network of multi-use trails and streets that encourages walking, biking, and physical activity, and links residential areas, workplaces, commercial centers, and community facilities.

Create urban gardens or orchards and support their use through garden programs that are accessible to community residents, especially in low-income neighborhoods that suffer from a lack of healthy food access and disproportionately high levels of food insecurity.

Consider the availability of public transportation and pedestrian/cycling routes to access existing or proposed facilities.

Determine funding mechanisms to pay for new or improved facilities. (See “Taxes and Fees” later in this section.)

Notably, plans should also allocate space for both active and passive recreation. A park for passive recreation (e.g., picnics) contributes to mental health, but does not support physical activity as much as more active recreation area used by children, youth, and adults – but both are necessary. Many inner cities have given little attention to developing youth recreation facilities because the families are less often well organized politically in urban cores. There also tends to be a significant shortage of potential recreational sites (exacerbated by the huge increase in recreational activity by girls and women in recent years, which planners had not previously anticipated).

Urban Forestry Plan Standards

Sample standards or ways to measure progress:

- ▶ Increase the number of trees relative to population density
- ▶ Increase the number of trees per acre
- ▶ Increase the percentage of tree canopy coverage along a given corridor or within a neighborhood or development
- ▶ Pursue a neighborhood garden standard, such as “one dedicated community garden for each 2,500 households”⁵

Urban Forestry Master Plan

Given the myriad benefits of greenery and green spaces, supporting or maintaining tree cover can be a worthwhile health-promoting strategy.

Tree-planting efforts can generate enthusiastic support within communities, bringing many volunteers out to help. But communities need to have a long-term plan in order to ensure continued benefits from additional tree cover. Young trees need regular support for four to five years, while many diseased trees need to be identified and removed before harming the rest of the forest. A typical community will spend 40 to 50 percent of its tree budget on upkeep and maintenance, 20 to 30 percent of old tree and stump removal, and only 10 to 20 percent on tree planting.⁶

Communities should consider passing a “tree ordinance” to solidify their commitment to urban forestry. This type of ordinance could call for a communitywide tree inventory to identify deficiencies and maintenance priorities, which could then inform a community forest plan that lays out

long-term goals and a schedule for regular maintenance. Communities should also match these efforts with a reliable stream of funding. Forming a “tree board” or “tree commission” charged with implementing this plan can help ensure that trees are not neglected.



Street trees provide shade on sidewalks and filter air.

- 1 Developed by the San Francisco Department of Public Health in tandem with the Healthy Development Measurement Tool.
- 2 Utilized by the City of Oakland.
- 3 Utilized by the City of Charlotte, NC.

- 4 Developed by the 1000 Friends of Oregon.
- 5 Implemented in Seattle, Washington.
- 6 U.S. Department of Agriculture, AN INTRODUCTORY GUIDE FOR URBAN AND COMMUNITY FORESTRY PROGRAMS, at 5 (Atlanta, 1993).

Project Review

Green Building Codes

Both local and state governments set building codes, but local governments can establish higher standards in many cases – including those that relate to indoor air quality, energy use, and internal building circulation. Cities and counties can improve indoor air quality, for example, by restricting the use of building materials such as carpeting, open concrete, and paints known to emit indoor air pollutants.

Some cities are beginning to incorporate green building guidelines into their building codes. Boston’s Green Building Task Force is working to incorporate Leadership in Energy and Environmental Design (LEED) standards (the nation’s benchmark green building standards) into the city’s zoning code. Under these requirements, all projects larger than 50,000 square feet would have to meet LEED standards for energy efficiency and green building technologies.

In other cases, cities and counties may need to update their existing building codes in order to ensure that certain green building practices can comply. For example, codes may not have standards appropriate for structures built out of straw bales, or buildings that can accommodate green roofs (roofs covered with vegetation). Health departments, for their part, may not have standards for approving the use of harvested rainwater or grey-water irrigation systems.

Local governments can also choose to expedite the permitting process for developers who adopt certain green building standards. In Portland, Oregon, projects pursuing LEED certification move quickly through the review process and receive additional planning support. In Arlington, Virginia, the county has developed a LEED scorecard that all site applicants must fill out: those who achieve one of four LEED building certifications will receive a density bonus and be able to tap into a green building fund.

Other cities, such as Berkeley, California, require that all project proponents work with Build-it-Green, a Berkeley-based nonprofit organization, to determine how to make their project more environmentally friendly. The

What is LEED?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating system is a nationally recognized benchmark for building design, construction, and operation. Developed by the U.S. Green Building Council (www.usgbc.org), LEED recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

environmental indicators touch upon project characteristics that influence health outcomes such as indoor air quality, energy use, and transit orientation.

Leadership in Energy and Environmental Design (LEED) for Neighborhood Developments (ND)

LEED-ND is a national standard for neighborhood location and design that integrates the principles of green building, new urbanism, and smart growth. A pilot for the rating system was released in early February 2007.

LEED-ND certification provides independent verification that a development's location, design, and construction meet accepted high standards for environmentally responsible, sustainable development. The system rewards efficient use of land and the building of walkable communities. Credits toward certification are awarded under several categories: smart location and linkage, neighborhood pattern and design, green construction and technology, and innovation and design process.

LEED-ND can help revitalize urban areas, decrease land consumption, decrease the need to drive, decrease polluted stormwater runoff, and build communities where people of a variety of income levels can coexist, and where jobs and services are accessible by foot or transit. Certified neighborhoods can influence public health by encouraging physical activity, improving air quality, and building social capital.

Cities can use LEED-ND in two ways. First, they should encourage all new development projects to pursue certification once the LEED-ND program is released for use. Second, they can use the content of the rating system as a guidepost for new development, reviewing development proposals against the requirements of the rating system and make recommendations for project improvements that improve health and environment outcomes.

Project Development Review Checklists

Numerous jurisdictions have created project or development review checklists that address health issues and provide users with a framework in which to evaluate different elements of a development from a public health perspective. Such checklists look at issues such as project location, street design, wastewater management, and air quality.

Checklists can help local government staff work with developers and site master planners to discuss both health concerns and opportunities of a given development. They offer a standardized (yet locally customizable) way to make trade-offs more visible, improve proposals, and engage residents in a discussion about how their communities should grow.

Checklists can be a simplified type of health impact assessment, completed quickly enough that government officials and planners can more easily compare different options. The lists can enter the planning process at the earliest stages – before the layout of a project has been determined – or later, when a development concept is available and the design and layout can be critiqued.

These reviews can take many forms, ranging from informal meetings between the project sponsor and government staff to study sessions with appointed or elected officials. Communities should determine which approach best meets their needs.

Health issues that are often considered in a development review checklist include:

- ▶ Access to parks and recreational facilities that provide a range of facilities, including passive and active recreation
- ▶ A complete network of sidewalks that are designed for pedestrian comfort – including appropriate width, sidewalks on both sides of the street, planting strips with street trees to provide shade, and safe pedestrian crosswalks
- ▶ On-site bicycle infrastructure designed for safety and convenience, and consideration of such issues as road widths, curb cuts and driveways, potential hazards, linkages to bicycle routes outside the site, and the provision of bicycle parking
- ▶ A street network that has a high level of connectivity and is not gated or walled-off from adjacent developments
- ▶ Street design that supports walking – e.g., narrow streets, street designs that reduce speed, and traffic calming measures such as pedestrian signals, frequent pedestrian crossings, and traffic circles
- ▶ Retail (including healthy food) or public services (such as post offices or schools) in close proximity to a majority of residential and employment uses
- ▶ A mix of land uses within walking distance (to minimize vehicle miles traveled, while increasing active transportation such as walking and biking)

Examples of Project Review Checklists

Shasta County's Public Health Development Checklist (www.naccho.org/topics/hdpd/land_use_planning/documents/dvlptrvwchecklistPHAB1-07.pdf) assesses how well projects meet certain specific standards, designed for internal discussions between health officials and local planning departments.

The **National Association of County and City Health Officials (NACCHO)** collaborated with Colorado's Tri-County Health Department to develop a more detailed project review checklist for health officials (<http://archive.naccho.org/Documents/LandUseChecklist-03-10-03.pdf>).

San Francisco's Health Development Measurement Tool (www.TheHDMT.org) is a more quantitative measurement tool enabling the city to identify desired outcomes and then analyze whether the project has met them.

New HIA Resource

One source for consulting on HIA is Human Impact Partners (www.humanimpact.org), a nonprofit organization founded recently to focus on expanding the use of HIA in California.

Eastern Neighborhoods Community Health Impact Assessment (ENCHIA)

Since 2003, the San Francisco Department of Public Health has been practicing health impact assessment (HIA) in the context of land use development. The goal is to ensure that city planning and policymaking accounts for how land use development affects community health resources.

The city's approach involves a critical analysis of land use plans and development projects, applying public health, urban planning, and social science evidence to comprehensive environmental and social assessment.

In November 2004 the city initiated the Eastern Neighborhoods Community Health Impact Assessment (www.sfdph.org/pbes/ENCHIA.htm), a more proactive and participatory type of HIA, to analyze how development in several San Francisco neighborhoods would affect social and physical environment attributes that are most important to health. This HIA reflects the first attempt at a comprehensive health impact assessment of land use planning in the United States.

Health Impact Assessments

Health impact assessment (HIA) is a relatively new tool that was created to understand the health implications of various policy and development decisions. According to the World Health Organization, an HIA is “a combination of procedures, methods, and tools by which a policy, program, or project may be assessed and judged for its potential effects on the health of the population and the distribution of these impacts within the population.”¹ While HIA is relatively new in the United States, it has been used widely in Europe, and the World Bank and the World Health Organization now advocate for its use in government decision-making.

HIAs provide a means to better integrate public health professionals and advocates into the planning process, and to ensure that health issues are considered in land use decisions. Similar to environmental impact reports (EIRs), which look at the environmental impacts of proposed developments, HIAs provide a practical framework for identifying health impacts and ways of addressing them.

There are generally five steps to developing an HIA:

Screening: Decide which projects, policies, and programs that could influence health can and should be evaluated.

Scoping: Identify which health impacts should be included.

Appraising the health impacts: Identify not only how many and which people may be affected, but also assess *how* they may be affected.

Recommending to decision-makers: Decide on report formats, length, and depth for the specific audience.

Evaluating and monitoring: Assessing what is happening as the project/program/policy is implemented, and evaluate whether the HIA has achieved its objective.²

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires public agencies to conduct an environmental review of government decisions that may adversely affect human health and the environment. For larger projects, this usually results in an environmental impact report, a document that looks at a wide range of topics such as aesthetics, biological resources, air pollution, noise pollution, and traffic and transportation conditions.

The law specifically requires that environmental review identify changes that may adversely impact human health and the environment, either directly or indirectly, and then develop mitigation measures that reduce the significant

impacts. Local jurisdictions can develop relevant indicators and standards for assessing the impact, or follow the standards of significance given in CEQA guidelines (e.g., “potentially significant impact,” “less than significant with mitigation incorporated,” “less than significant impact,” “no impact”).³

While the language of CEQA may permit detailed health assessment, in practice, CEQA does not directly examine the potential health impacts of development. Rather, it looks at environmental impacts in the ecological and historic senses. Any analysis of health impacts that does occur within environmental impact reporting has been largely limited to the study of air pollution and toxic chemicals.

However, laws and regulations for an environmental impact assessment enable a *health* impact assessment (HIA) whenever physical changes in the environment may significantly affect health.⁴ CEQA provides an opportunity to conduct HIA or to ensure responsive action to findings of an HIA conducted in parallel with an environmental assessment.

The San Francisco Department of Public Health is one example of a public health department that has been actively using requirements for health analysis within CEQA to consider impacts such as involuntary displacement, housing affordability, residential segregation, open space adequacy, and pedestrian safety. In several cases, this has resulted in the mitigation of adverse impacts through changes in project design. Other cities can similarly use CEQA to address public health impacts of proposed projects.

1 World Health Organization (WHO), HEALTH IMPACT ASSESSMENT, available at www.who.int/hia/en (last accessed 9/26/07).

2 Abridged from *Land Use Planning for Public Health: The Role of Local Boards of Health in Community Design and Development*, ATLANTA REGIONAL HEALTH FORUM AND ATLANTA REGIONAL COMMISSION (2006). Note: Appendix A of the document contains a list of questions to ask at each stage in the HIA process.

3 See California Environmental Quality Act Guidelines, available at www.ceres.ca.gov/ceqa/guidelines/pdf/appendix_g-3.pdf (last accessed 9/26/07).

4 R. Bhatia, *Protecting Health Using an Environmental Impact Assessment: A Case Study of San Francisco*, AMERICAN JOURNAL OF PUBLIC HEALTH, at 406-413 (March 2007).

Taxes and Fees: Financing Healthy Infrastructure

Implementing health goals can be a costly effort. Paving new sidewalks, building bike lanes, installing lighting in parks, maintaining street trees, and subsidizing green grocers require a real financial investment. Meanwhile, offering tax breaks or canceling advertising/billboard contracts to promote public health can reduce local government revenue.

While all of these measures may be far cheaper than the eventual cost of the diseases they can prevent, local governments don't accumulate those benefits directly. Budget pressures can make local government less inclined to pursue health-oriented built environment goals, perceived by some as "amenities."

Local governments looking to finance health interventions in the built environment can seek financial support through a variety of channels. Grants or loans from foundations and other levels of government are likely to be the least controversial, since they impose no burden on taxpayers or local governments, but they may also come with strings attached and will not be available indefinitely. Other options include partnering with redevelopment agencies to facilitate the use of tax increment financing (TIF) and eminent domain for attracting and developing health-promoting businesses, like grocery stores. Bonds can raise large amounts of money quickly, but they must be paid back and often are subject to voter approval. Taxes and fees can raise steady streams of revenue, but they are likely to be controversial within the community.

Taxes and fees warrant special discussion as financing tools. Since Proposition 13 passed in California in 1978, local governments have needed approval from two-thirds of voters to raise either property or sales taxes. This requirement has significantly curbed the use of taxes to raise revenue, with a few exceptions. For example, Marin County voters agreed to raise the county sales tax from 7.25 percent to 7.75 percent in 2004, with 11 percent of the new revenue dedicated as supplemental funding for Safe Routes to School projects.

In general, fees are an easier option, since they only require 50 percent voter approval. Local governments can require fees from both developers

For more information on economic development strategies (including redevelopment and eminent domain) that can be used to promote the development of healthy food retail, see *Economic Development and Redevelopment: A Toolkit on Land Use and Health*, available at www.healthyplanning.org.

and property owners, so long as there is a “reasonably commensurate” relationship (i.e., a nexus) between the fee and the problem it is designed to address. Typically developers are required to pay for new roads, sewers, or parks through development agreements; communities can also require them to build health-promoting amenities such as connected sidewalks, bicycle pathways, and street trees.

Cities and counties can also establish an “assessment district” around neighborhoods that will benefit from an infrastructure investment. They can thus invest in a health-related amenity (such as a park) and impose a fee on those expected to benefit. Local governments have assessed “regulatory fees” for liquor stores, billboards, amount of solid waste, and rental housing properties, with the resulting revenue going towards related programs such as police protection, community beautification, recycling programs, and affordable housing.

Taxes and fees can also act as an incentive, in addition to raising revenue. Communities should think about how to tailor fees and taxes to encourage and discourage different behaviors. While grocery stores struggling to deliver fresh produce could receive incentives (grants, loans, or tax breaks) to offset the costs of operating refrigeration units, stores that sell low-nutrient foods could be charged a regulatory fee that would be used to mitigate the harmful health effects of these foods – by funding a community nutrition-education program, perhaps, or by building or maintaining recreational facilities.

Another proposal, touted by Donald Shoup of the University of California at Los Angeles, is to charge users for parking spaces the government currently supplies for free, such as the free street parking in many neighborhood commercial districts. This disincentive can help encourage the use of public transit, walking, and biking instead of driving – helping a community reduce its air pollution and risk of pedestrian accidents while generating revenue that could be used to build sidewalks, for example. Parking revenue can be used in other creative ways to improve community infrastructure in ways that promote public health: Chicago, for instance, plans to use revenue from leasing publicly owned downtown parking garages to improve facilities and install playgrounds at approximately 100 city parks.

Grants and Loans

In addition to the minigrants available for training purposes (see “Getting Started,” Section I), local governments can also pursue grants or loans from foundations, nonprofits, and state and federal governments.

Grants and Loans

Government Grants and Loans

See www.grants.gov to learn about finding and applying for federal grants.

The California Blueprint for Bicycling and Walking (www.dot.ca.gov/hq/tpp/offices/bike/CABlueprintRpt.pdf) includes a list of state and federal funding resources for local governments to improve walking and biking infrastructure.

The **California Department of Transportation’s Division of Local Assistance** has created the *Transportation Funding Opportunities Guidebook* (www.dot.ca.gov/hq/LocalPrograms) for cities and counties aiming to improve their transportation infrastructure through features including walking and bicycling amenities.

The USDA offers financial support to improve food systems, particularly in low-income communities, through programs including the Community Food Projects Competitive Grants Program (www.csrees.usda.gov/fo/fundview.cfm?fonum=1080).

The U.S. Environmental Protection Agency’s **Smart Growth Implementation Assistance Program** (www.epa.gov/dced/sgia.htm) to help communities foster economic growth, protect environmental resources, enhance public health, and plan for development. This annual competitive solicitation provides awardees with direct technical assistance from a team of national experts.

Foundation Support

The Foundation Center (<http://foundationcenter.org>) offers information on foundation support.

The **Robert Wood Johnson Foundation’s Active Living Research** program (www.activelivingresearch.org/grantsearch) offers a variety of grants to communities to help build evidence related to active living.

The California Endowment (www.calendow.org) grants funding to organizations that support its mission to “expand access to affordable, quality health care for underserved individuals and communities, and to promote fundamental improvements in the health status of all Californians,” including opportunities to create healthier built environments. The California Endowment has supported the city of Richmond’s effort to add a health policy element to its general plan update.

Kaiser Permanente’s Healthy Eating Active Living (HEAL) initiative (<http://xnet.kp.org/communitybenefit/index.html>) seeks to visibly transform the communities in which we live, work, and go to school, so that healthy food is convenient and affordable, and engaging in physical activity is part of one’s daily life.

Conclusion

The general planning process offers a multitude of opportunities to guide local development in ways that help build healthy, sustainable communities. This toolkit was designed to provide a starting point for advocates and practitioners seeking model health language for land use plans, as well as strategies for collecting data and engaging partners to implement policies and plans effectively. It also presents rationale for incorporating health considerations into planning documents through summaries of research linking health outcomes to the built environment.

Local government agencies, community groups, and others can all work together to create patterns of development that improve community health. In addition to producing toolkits like this one, the Planning for Healthy Places program of Public Health Law & Policy provides trainings and one-on-one technical assistance on the land use decision-making process. To learn more about the products and services available, visit www.healthyplanning.org.

We also welcome your feedback on this toolkit. Please feel free to contact info@healthyplanning.org with any comments or suggestions.

Fact Sheets

Research on Land Use and Health from Two Different Perspectives

Planners and health practitioners often come to an understanding of the links between health and the built environment from different points of view. While health practitioners approach the issue through the lens of health promotion and disease and injury prevention, planners may begin with features of the built environment, such as transportation systems, neighborhood density and mix of uses, and urban design. Both perspectives can yield valuable insights into potential land use policy solutions that can improve community health and sustainability.

This section of *How to Create and Implement Healthy General Plans* summarizes research linking health outcomes to the built environment. It is divided into what can also serve as two stand-alone documents: one for health practitioners and advocates, in which the research is categorized according to public health issue (e.g., injury prevention, access to healthy food); and one for planners, in which the research is categorized by land use issue (e.g., density, street connectivity). The information is meant to provide rationale to support built environment policy change and to serve as a discussion tool when developing connections between public health practitioners and planners, not as a comprehensive summary of the literature to date.

Research linking health outcomes to the built environment is still emerging, largely because this is a new area of study that requires new tools to measure how development patterns affect health behaviors and outcomes. Such research needs to take into account a wide range of health factors and environmental triggers, as well as the ways in which outcomes may differ among populations such as children, elderly adults, and low-income communities and communities of color. Still, existing research points to a number of good signposts indicating likely connections between the built environment and diverse health issues such as physical activity, access to healthy foods, respiratory illnesses, and injury prevention.

The Health Perspective on Planning: **Built Environments as Determinants of Health**

An emerging body of research points to various connections between community design and health issues. This fact sheet – developed to provide rationale for land use policy change – presents a brief summary of existing research, categorized by public health topic. It is intended to help public health practitioners work with planners toward land use policy solutions that improve community health.

Increasing Physical Activity

Recent statistics indicate that 53 percent of Californians fail to meet recommended guidelines for physical activity, putting them at high risk for illness and premature death.¹ Limited physical activity is a primary risk factor for heart disease, cancer, stroke, diabetes, and Alzheimer’s disease – five of the top ten causes of death in California. It is also a primary risk factor for obesity and diabetes, the fastest-growing diseases in the state.²

The residents of many California neighborhoods have no option but to drive everywhere: it is likely too far or dangerous to walk or bike to work, the nearest transit stop, a grocery store, or a public park. If communities were designed so that people could walk or bicycle to these destinations, residents would have many more opportunities to incorporate physical activity into their daily lives.



www.pedbikeimages.org / Dan Burden

- ▶ People living in highly walkable, mixed-use communities (where residential, commercial, and office land uses are located near each other) are more than twice as likely to get 30 or more minutes of daily exercise as those living in auto-oriented, single-use areas.³
- ▶ Almost one-third of Americans who commute to work via public transit meet their daily requirements for physical activity (30 or more minutes per day) by walking as part of their daily life, including to and from the transit stop.⁴
- ▶ People who live within walking distance (1/4 mile) of a park are 25 percent more likely to meet their minimum weekly exercise recommendation.⁵

Access to Healthy Food Retail



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Unhealthy eating habits are a primary risk factor for five of the top ten causes of death in California. Meanwhile, the state has four times as many “unhealthy” food outlets (e.g., fast food chains, restaurants, and convenience stores) as “healthy” food outlets (supermarkets, produce vendors, and farmers’ markets).⁶ The result is what’s known as *food deserts*, neighborhoods that lack places where residents can buy fresh fruits and vegetables and other healthy foods.

Convenience stores, gas stations, and fast food outlets are often the only food retailers available in low-income neighborhoods, where there may be high concentrations of households eligible for food stamps.⁷ Residents who

can’t drive are left to either take a bus or taxi to the nearest grocery store – a time-consuming inconvenience that many can’t afford – or rely on “fringe” food outlets such as gas stations or liquor stores. Transportation, land use, and economic development decisions shape neighborhood food access and the food retail environment.

- ▶ In low-income neighborhoods, each additional supermarket has been found to increase residents’ likelihood of meeting nutritional guidelines by one-third.⁸
- ▶ Residents in communities with a more “imbalanced food environment” (where fast food and corner stores are more convenient and prevalent than grocery stores) have more health problems and higher mortality than residents of areas with a higher proportion of grocery stores, when other factors are held constant.⁹
- ▶ The presence of a supermarket in a neighborhood is linked to higher fruit and vegetable consumption and a reduced prevalence of overweight and obesity.^{10,11}

Environmental Health

Polluted air is a primary trigger for asthma attacks and a major cause of asthma, bronchitis, lung cancer, leukemia, and other illnesses. Between 2001 and 2005, the adult asthma rate increased by 12 percent in California, and the childhood asthma rate increased by 15 percent.¹² Motor vehicles are often the principal contributors of particulate matter and other pollutants that contribute to the formation of ozone; diesel trucks in particular emit particulate matter air pollutants that have the potential to cause cancer, premature death, and other health effects.^{13, 14} Meanwhile, hundreds of Californians suffer acute bacterial infections and overexposure to chemical contaminants from polluted drinking water each year.¹⁵ Decisions about the location of certain land uses, land use mix and intensity, transportation investments, and design and building guidelines play a role in environmental health.

Outdoor Air Quality

- ▶ In general, the more vehicle miles traveled (VMT) in a community, the worse the air pollution.¹⁶
- ▶ Children living near heavily trafficked roads experience decreased lung function, greater rates of hospitalization for asthma attacks,¹⁷ and greater risk for all kinds of cancer.¹⁸
- ▶ Living near heavily trafficked roads greatly increases asthma severity, a burden borne disproportionately by asthma sufferers who are ethnic/racial minorities or from low-income households.¹⁹
- ▶ Exposure to traffic is related to early death. A study in the Netherlands found that elderly adults living near busy roads had almost twice the risk of dying from cardiopulmonary disease.²⁰
- ▶ Places with more pavement and less greenery are more susceptible to the “heat island effect,” which accelerates the formation of ozone and increases the risk of heat stroke.²¹

Indoor Air Quality

- ▶ Californians spend almost 90 percent of their time indoors,²² yet indoor air is often more polluted than outdoor air.²³ This is due to a combination of second-hand smoke, mold growth, allergens from pets and pests, dust, radon, and off-gassing of volatile organic compounds (VOCs) from materials such as carpeting and paints – all coupled with the lack of ventilation that traps unhealthy air inside buildings.²⁴
- ▶ Conditions that promote exposure to irritants and allergens such as secondhand smoke, house-dust mites, cockroach antigens, and mold spores are common in low-income housing. Old carpeting acts as a reservoir for allergens, while kitchens and baths (particularly in older housing) often lack adequate ventilation, increasing the problems associated with moisture and mold.²⁵ All of these irritants and allergens can cause or aggravate diseases such as asthma.

- ▶ Green building practices – for example, the use of low-VOC materials, natural ventilation, and windows instead of artificial lights – can improve indoor air quality.

Water Quality

- ▶ Pavement and other impermeable surfaces that do not absorb water accelerate its flow into rivers, preventing the natural filtration and cleaning provided by plants, rocks, and soil. This runoff increases the risk for microbial and chemical contamination of drinking water supplies, especially after heavy rainstorms.²⁶
- ▶ By preventing the natural recharge of underwater aquifers, pavement also accelerates the depletion of underground freshwater supplies.²⁷
- ▶ Asphalt and cement can be replaced with more permeable surfaces and water filtration buffers to improve water quality.

Injury Prevention

Motor vehicle collisions are the leading cause of accidental death in California, and being hit by a car while walking is the third leading cause of death for children under 12.²⁸ For every mile traveled, a pedestrian’s risk of dying is more than 15 times that of drivers, providing a legitimate disincentive for walking.²⁹ Many of these injuries and fatalities could be prevented by designing roadways to protect pedestrians and bicyclists.



Photo courtesy of New York Bicycling Coalition

- ▶ Roads designed to maximize car traffic – high-speed, unobstructed, and wide multilane roads – are dangerous to pedestrians and bicyclists. Increased traffic collision rates are correlated with increases in total vehicle miles traveled (VMT).³⁰
- ▶ Crash rates increase exponentially with street width, especially since drivers move faster on wider roads.³¹ Pedestrian injuries can be reduced more than sevenfold by slowing traffic down from 30 to 20 miles per hour.³² Slowing traffic from 40 to 20 miles per hour can reduce a pedestrian’s chance of being killed, if hit, from 85 percent to just 5 percent.³³
- ▶ Pedestrian accidents are 2.5 times less likely on streets with sidewalks than on otherwise similar streets.³⁴

Elder and Child Health



www.pedbikeimages.org / Michael Cymek

Since neither the youngest nor oldest members of society can drive, car-dependent neighborhoods can hinder children’s development and impede seniors’ ability to maintain social connections and access needed services. Vulnerable populations like children and the elderly may also be even more affected by planning decisions that fail to take health into account, such as locating residential developments near freeways, the persistence of neighborhood “food deserts,” and the creation of urban “heat islands.”

- ▶ Children with attention deficit disorder have been found to function better than usual after activities in green settings; the “greener” a child’s play area,

the less severe his or her attention deficit symptoms. This research suggests that contact with nature may support attentional functioning in a population of children who desperately need attentional support.³⁵

- ▶ Planning for diverse transportation options will only grow in importance as America grays. There are currently about 4.5 million nondrivers over age 75, and projections indicate this figure is likely to grow to about 6 million by 2020.³⁶
- ▶ Safe, walkable streets and paths are especially important to the elderly. Individuals age 50 and older make three-quarters of all trips not taken by private automobile on foot.³⁷
- ▶ Older nondrivers take 65 percent fewer social, family, and religious trips than older people who still drive. On a given day, those in lower-density neighborhoods are 50 percent more likely to stay home than those living in denser neighborhoods.³⁸

Mental Health and Substance Abuse

Stress and high blood pressure are associated with increased risk of cardiovascular disease, stroke, obesity and diabetes, and osteoarthritis. Anxiety is also associated with increased risk of aggression, depression,³⁹ and substance abuse.⁴⁰ Attributes of the built environment contribute to both anxiety and calm.

- ▶ Drivers who commute longer distances tend to have higher blood pressure and report more feelings of being “tense” or “nervous.”^{41, 42}
- ▶ Studies have associated higher rates of depression with abundant graffiti and fewer private gardens.⁴³
- ▶ “Everyday” interactions with nature – such as viewing natural scenes and being in natural environments (including urban park settings) – help reduce anxiety and hasten recovery from illness.⁴⁴

Violence Prevention



Homicide is the leading cause of death among young men in some parts of California, and fear of assault is a leading cause of anxiety. Fear of assault is a major reason people choose not to walk, use recreational facilities, or allow their children to play outside. While many variables influence violence and crime in communities, aspects of the physical environment can both encourage and discourage street crime.

- ▶ Research suggests that the physical features, layout, and design of many aspects of neighborhoods can influence crime prevention and other crime-related outcomes, such as neighborhood deterioration and residents' fear of crime. Relevant features of the built environment include housing design, block layout, land use and circulation patterns, resident-generated territorial features (like street closures or community gardens), and physical deterioration.⁴⁵
- ▶ Street crime along particular streets can decline or vanish after implementing building patterns that provide “defensible space” (an area that residents feel they control), “natural surveillance” (the ability to see what’s happening around an area) and “sense of order” (places that are well tended and lack visible signs of deterioration). Equally important, such design features help residents *feel safe*.^{46, 47, 48}
- ▶ A study of more than 500 zip codes in California over time found that an increase in the number of bars and take-out alcohol retailers (liquor, convenience, and grocery stores) corresponded with an increase in the rate of violence.⁴⁹

- ▶ Residents living in “greener” surroundings report lower levels of fear, fewer incivilities, and less aggressive and violent behavior (controlling for the number of apartments per building, building height, vacancy rate, and number of occupied units per building).⁵⁰

Chronic Health Disparities/Poverty

Concentrations of health problems develop in certain neighborhoods, where residents experience substandard housing and violence, and where grocery stores and parks are rare.

- ▶ Evidence from some California communities shows that life expectancy is 20 years greater in the wealthiest census tracts than in the most impoverished.⁵¹
- ▶ A study of more than 300 cities in the United States found that those with the greatest income inequality also had the greatest rates of mortality.⁵²
- ▶ Relocating residents from public housing projects into neighborhoods with lower concentrations of poverty has been associated with weight loss and a decline in reported stress levels among adults, and reduced rates of injury among male youths.^{53, 54} (However, research suggests that relocating vulnerable public housing residents to higher-quality housing or safer neighborhoods may not improve their health status without substantial relocation assistance, partly due to poorer initial health status of public housing residents and the stress of forced relocation.⁵⁵ This may have implications for residents of affordable housing who are displaced due to gentrification or redevelopment.)



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The Planning Perspective on Health: Community Health as a Goal of Good Design

An emerging body of research points to various connections between community design and health issues. This fact sheet – developed to provide rationale for land use policy change – presents a brief summary of existing research, categorized by built environment issue. It is intended to help planners work with public health practitioners toward land use policy solutions that improve community health.

Regional Location / Access to Transit

Communities built at the edges of metropolitan centers are those most likely to encourage a car-dependent lifestyle, marked by long commutes to work and significant distance from retail stores and public amenities. All of this driving contributes to health problems, including air pollution, obesity, and social isolation.

- ▶ Regional accessibility – that is, the location of a development relative to existing development or central business districts – has great impact on the amount that people drive, walk, and take transit. Lower-density areas without destinations in close walking distance or frequent transit service correlates with greater vehicle miles traveled (VMT) per capita because people must drive more to do the same activities.¹
- ▶ VMT are directly associated with air pollution, and areas with high levels of VMT per capita also tend to have higher accident and injury rates.²



- ▶ For each hour spent in a car each day, drivers are 6 percent more likely to be obese (controlling for age, education, gender, and ethnicity).³
- ▶ People who live in more sprawling environments are more at risk for headaches and breathing difficulties.⁴
- ▶ Drivers who commute longer distances tend to have higher blood pressure and report more feelings of being “tense” or “nervous.”^{5,6}
- ▶ Each 1 percent increase in the proportion of neighbors who drive to work is associated with a 73 percent decrease in the chance that any individual will report having a social tie to a neighbor.⁷
- ▶ Almost one-third of Americans who use public transit to get to work meet their daily requirements for physical activity by walking as part of their daily life, including to and from the transit stop.⁸
- ▶ Neighborhood density is positively correlated with the number of minutes of physical activity residents get per day.¹¹ As density increases, the amount of physical activity typical residents get each day increases.
- ▶ For each half mile walked per day, people are about 5 percent less likely to be obese (controlling for age, education, gender, and ethnicity).¹²
- ▶ Per capita traffic casualties are many times lower in higher-density urban neighborhoods (where drivers are more alert for pedestrians) than in low-density suburbs.¹³
- ▶ Doubling density beyond 30 employees per acre, or 13 residents per acre, is associated with more than a 30 percent decrease in vehicle miles traveled (VMT) and total air pollution.¹⁴

Density and Intensity of Development



Photo courtesy of Steve Randolph

The density or intensity of land use (“compactness”) brings destinations closer together and thus influences the amount people drive, walk, or take transit. Indeed, density has been shown to reduce obesity by promoting transit ridership and walking as a transportation mode.⁹ Since a majority of people will not walk further than a quarter mile or five minutes to a destination, people are more likely to walk to their destinations in denser environments.¹⁰

Land Use Mix

Even more so than increasing density alone, creating mixed-use development (where residential, commercial, and office land uses are located near each other) reduces the need to drive and increases residents’ opportunities to walk or bike for transportation.

- ▶ Specific land uses most strongly linked to the percentage of household trips made on foot are educational facilities, office buildings, restaurants and taverns, parks, neighborhood-scale retail establishments, civic uses, and grocery stores.¹⁵
- ▶ Neighborhoods with mixed land uses are associated with shorter trip distance and greater transit ridership, walking, and overall physical activity.^{16, 17, 18, 19}
- ▶ A doubling of neighborhood mix is associated with a 5 percent reduction in both vehicle miles traveled and traffic accident rates.²⁰
- ▶ People living in highly walkable, mixed-use communities are more than twice as likely to get 30 or more minutes of daily exercise as people who live in more auto-dependent neighborhoods.²¹



Photo courtesy of Mark Strozler

- ▶ One study in the Atlanta area found that residents of the most mixed-use neighborhoods were more than 30 percent less likely to be obese (controlling for age, education, gender, and ethnicity) than residents of neighborhoods with a lower mix of uses.²²

Street Connectivity and Street Design

Cul de sac developments isolate homes and create disconnected, often meandering routes accessible primarily by car. Such “incomplete streets,” which fail to provide connectivity and appropriate pedestrian and bicycle facilities (such as sidewalks and designated bike routes), discourage walking and cycling by creating unsafe environments and forcing longer, indirect routes to destinations. Creating “complete streets” can decrease vehicle miles traveled (VMT) and increase the number of destinations within walking or biking distance.^{23, 24}

- ▶ Traditional grids disperse traffic, resulting in less congestion and fewer VMT. Decreased congestion particularly lowers hydrocarbon emissions, nitrogen oxides, and other pollutants produced during combustion.²⁵
- ▶ Pedestrian accidents are 2.5 times more likely on streets without sidewalks than on otherwise similar streets.²⁶

- ▶ Crash rates increase exponentially with street width, especially since drivers move faster on wider roads²⁷ and more cautiously on narrow streets.²⁸
- ▶ Pedestrian injuries can be reduced more than seven-fold by slowing traffic down from 30 to 20 miles per hour.²⁹ Slowing traffic from 40 to 20 miles per hour can reduce a pedestrians’ chance of being killed, if hit, from 85 percent to just 5 percent.³⁰
- ▶ Traffic calming measures such as speed humps are associated with a 50 to 60 percent reduction in the risk of children’s injury or death when struck by a car.³¹ In particular, chicanes (S-shaped curves in the road) are the most effective strategy, reducing collisions by an average of 82 percent.³²

Access to Healthy Food Retail

California has four times as many “unhealthy” food outlets (e.g., fast food chains, restaurants, and convenience stores) as “healthy” food outlets (supermarkets, produce vendors, and farmers’ markets).³³ The result is what’s known as *food deserts*, neighborhoods that lack places where residents can buy fresh fruits and vegetables and other healthy foods. Convenience stores, gas stations, and fast food outlets are often the only food retailers available in low-income neighborhoods, where there may be high concentrations of households eligible for food stamps.³⁴ Residents who can’t drive are left to either take a bus or taxi to the nearest grocery store – a time-consuming inconvenience that many people can’t afford – or rely on more expensive, “fringe”



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food retail outlets such as gas stations or liquor stores. Transportation, land use, and economic development decisions shape neighborhood food access and the food retail environment.

- ▶ In low-income neighborhoods, each additional supermarket increases residents' likelihood of meeting nutritional guidelines by one-third.³⁵
- ▶ Residents in communities with a more "imbalanced food environment" (where fast food and corner stores are more convenient and prevalent than grocery stores) have more health problems and higher mortality than residents of areas with a higher proportion of grocery stores, when other factors are held constant.³⁶
- ▶ The presence of a supermarket in a neighborhood is linked to higher fruit and vegetable consumption and a reduced prevalence of overweight and obesity.^{37, 38}

Access to Recreational Facilities



Photo courtesy of Michael Ronkin

Lack of physical activity is a primary risk factor in five of the top ten causes of death in California: heart disease, cancer, stroke, diabetes, and Alzheimer's disease. It is also a primary risk factor for obesity and diabetes, the fastest-growing diseases in the state.³⁹ Yet only 47 percent of Californians meet the recommended guidelines for physical activity.⁴⁰ Convenient, safe access to recreational facilities is directly correlated to an increase in the amount that people exercise.

- ▶ Creating new places for physical activity or improving their accessibility can increase the proportion of residents who exercise three times a week by 25 percent.⁴¹

- ▶ People who live within walking distance (1/4 mile) of a park are 25 percent more likely to meet the minimum weekly exercise recommendation of 30 minutes three times a week.⁴²
- ▶ In a study of adolescent girls (whose physical activity levels tend to decline substantially during puberty), those who lived near more parks – particularly parks with amenities that are conducive to walking and other physical activity – engaged in more extracurricular moderate/vigorous activity than girls who lived near fewer parks.⁴³

Presence of Greenery

In addition to parks for active recreation, the mere presence of street trees, shrubs, and green open spaces can provide an important mental refuge for people. It is important that all urban environments, regardless of density or location, provide high-quality green spaces such as public parks and trails, street trees, and community gardens.

- ▶ Street trees and open space help filter pollutants from the air and mitigate the "heat island effect" caused by bare pavement.⁴⁴
- ▶ The presence of trees reduces self-reported feelings of stress.⁴⁵
- ▶ The presence of shared natural or open spaces has been associated with stronger social ties among neighbors.⁴⁶
- ▶ Children with easier access to green space in their own neighborhoods have exhibited better ability to concentrate in school.⁴⁷



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Distance from Sources of Air Pollution

Motor vehicles are often the principal contributors of particulate matter, nitrogen oxides, and other pollutants that contribute to the formation of ozone. Diesel trucks in particular emit particulate matter air pollutants that have the potential to cause asthma, cancer, premature death, and other health effects.^{48, 49} Air pollution is significantly worse near highly trafficked roads, diesel truck routes, and energy-intensive industrial areas, and in regions with high rates of vehicle miles traveled (VMT). Land use decisions and transportation investments affect location of uses and transportation mode choices, contributing to both regional and site-specific air quality.

- ▶ Compared with more compact communities, lower-density communities have higher vehicle ownership rates and residents who drive longer distances.⁵⁰ Sprawling communities generate higher per-capita vehicle emissions⁵¹ and have higher peak ozone concentrations than more compact areas.⁵²
- ▶ Residents of homes within 1,000 feet of busy streets are at an increased risk of exposure to particulate matter, nitrogen oxide, hydrocarbon, and carbon monoxide pollution.⁵³
- ▶ Children living near busy highways have significant impairments in lung development that can lead to respiratory problems for the rest of their lives.⁵⁴
- ▶ Living in heavily trafficked areas greatly increases asthma severity, a burden borne disproportionately by asthma sufferers who are ethnic/racial minorities or from low-income households⁵⁵
- ▶ A substantial number of children in California attend schools close to major roads with very high traffic counts (and corresponding air pollution levels), and a disproportionate number of those students are economically disadvantaged and ethnic/racial minorities.⁵⁶

Affordable Housing

Concentrations of affordable housing, either in public housing projects or in lower-income neighborhoods, exacerbate residents' health problems by increasing the concentration of poverty.

- ▶ A lack of affordable housing within communities may compromise the health of low-income residents as they spend more on housing costs and less on health care and healthy food. It can also put residents at greater risk of exposure to problems associated with poor-quality housing (mold, pests, and lead and other hazardous substances), and cause stress and other adverse health outcomes as a result of potential housing instability.⁵⁷
- ▶ Relocating residents from public housing projects into neighborhoods with lower concentrations of poverty has been associated with weight loss and a decline in reported stress levels among adults, and reduced rates of injury among male youths.^{58, 59} (However, research suggests that relocating vulnerable public housing residents to higher-quality housing or safer neighborhoods may not improve their health status without substantial relocation assistance, partly due to poorer initial health status of public housing residents and the stress of forced relocation.⁶⁰ This may have implications for the health of low-income residents who are displaced due to gentrification or redevelopment.)
- ▶ Community development strategies to improve or develop neighborhood amenities that have the potential to improve health outcomes may be especially important in neighborhoods where low-income and affordable housing is located, since low-income populations face increased vulnerability to health problems. For example, creating walkable communities facilitates healthy exercise, and adding retail establishments increases access to fresh fruits and vegetables.⁶¹

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