AREAS OF PRACTICE

Natural Resources and Environment
Policy Guide on Community and Regional Food Planning

Introduction

Food is a sustaining and enduring necessity. Yet among the basic essentials for life — air, water, shelter, and food — only food has been absent over the years as a focus of serious professional planning interest. This is a puzzling omission because, as a discipline, planning marks its distinctiveness by being comprehensive in scope and attentive to the temporal dimensions and spatial interconnections among important facets of community life.

Several reasons explain why planners have paid less attention to food issues when compared with long-standing planning topics such as economic development, transportation, the environment, and housing. Among these reasons are:

1. a view that the food system — representing the flow of products from production, through processing, distribution, consumption, and the management of wastes, and associated processes — only indirectly touches on the built environment, a principal focus of planning's interest;
2. a sense that the food system isn't broken, so why fix it; and,
3. a perception that the food system meets neither of two important conditions under which planners act — i.e., dealing with public goods like air and water; and planning for services and facilities in which the private sector is unwilling to invest, such as public transit, sewers, highways, and parks.

Yet, over the last few years, interest in food system issues is clearly on the rise in the planning community. In 2005 at the APA National Planning Conference in San Francisco, a special track of sessions on food planning subjects was held for the first time in APA's history. An unexpectedly high number of 80 planners responded to the call for papers for this track. In 2006, a follow-up track of sessions took place at the San Antonio APA conference. Special journal issues devoted entirely to food planning have included the Journal of Planning Education and Research (Summer 2004) and Progressive Planning (Winter 2004). Courses on community food planning are being offered for the first time by several graduate planning programs. Another sign of progress was a white paper on food planning prepared in late 2005 and presented to the Delegates Assembly at the 2006 APA conference. Approved subsequently by the APA Legislative and Policy Committee, the white paper became the impetus for preparing this Policy Guide, which provides a vision and suggests ways for planners to become engaged in community and regional food planning.

The following are a few converging factors that explain the heightened awareness among planners that the food system is indeed significant:

- Recognition that food system activities take up a significant amount of urban and regional land
- Awareness that planners can play a role to help reduce the rising incidence of hunger on the one hand, and obesity on the other
- Understanding that the food system represents an important part of community and regional economies
- Awareness that the food Americans eat takes a considerable amount of fossil fuel energy to produce, process, transport, and dispose of
- Understanding that farmland in metropolitan areas, and therefore the capacity to produce food for local and regional markets, is being lost at a strong pace
- Understanding that pollution of ground and surface water, caused by the overuse of chemical fertilizers and pesticides in agriculture adversely affects drinking water supplies
- Awareness that access to healthy foods in low-income areas is an increasing problem for which urban agriculture can offer an important solution
- Recognition that many benefits emerge from stronger community and regional food systems

Current planning activities already affect the food system and its links with communities and regions. For example, land use planners may use growth management strategies to preserve farm and ranch land, or recommend commercial districts where restaurants and grocery stores are located, or suggest policies to encourage community gardens and other ways of growing food in communities. Economic development planners may support the revitalization of main streets with traditional mom-and-pop grocery stores, or devise strategies to attract food processing plants to industrial zones. Transportation planners may create transit routes connecting low-income neighborhoods with supermarkets, and environmental planners may provide guidance to farmers to avoid adverse impacts on lakes and rivers. This policy guide seeks to strengthen connections between traditional planning and the emerging field of community and regional food planning. As such, two overarching goals are offered for planners:

1. Help build stronger, sustainable, and more self-reliant community and regional food systems, and,
2. Suggest ways the industrial food system may interact with communities and regions to enhance benefits such as economic vitality, public health, ecological sustainability, social equity, and cultural diversity.

This Policy Guide on community and regional food planning presents seven general policies, each divided into several specific policies. For each specific policy, a number of roles planners can play are suggested. The seven general policies are:

1. Support comprehensive food planning process at the community and regional levels;
2. Support strengthening the local and regional economy by promoting local and regional food systems;
3. Support food systems that improve the health of the region’s residents;
4. Support food systems that are ecologically sustainable;
5. Support food systems that are equitable and just;
6. Support food systems that preserve and sustain diverse traditional food cultures of Native American and other ethnic minority communities;
7. Support the development of state and federal legislation to facilitate community and regional food planning discussed in general policies #1 through #6.

Findings

How planning operates to balance the need for an efficient food system with the goals of economic vitality, public health, ecological sustainability, social equity, and cultural diversity will present a formidable challenge to planners who engage in community and regional food planning, and in
planning for various community sectors such as transportation, economic development and the environment. This section covers salient facts and trends about how the food system impacts localities and regions and provides some examples of progress being made by planners.

1. General Effects of the Food System on Local and Regional Areas

Today's industrial food system is a product of significant scientific and institutional advances over the previous centuries, and generally provides an abundant and safe supply of food to most people in the country. It has paralleled developments in mass production and economies of scale in other industries and is characterized by the use of significant amounts of synthetic fertilizers and pesticides, and new shipping technologies. It contributes nearly $1 trillion to the national economy — or more than 13 percent of the GNP — and employs 17 percent of the labor force (American Farmland Trust, 2003). Food sector jobs represent close to 15 percent of the total workforce of many communities, while retail sales from food outlets such as grocery stores and eating and drinking places can be as much as a fifth of a community's total retail sales (Pothukuchi and Kaufman, 1999).

However, the food system is not without problems for communities and regions. A clear trend in all parts of the food system is greater concentration of ownership, which means that decisions affecting communities are increasingly made by absentee business owners. For example, in 2000, the top five food retailers accounted for 43 percent of sales, up from 24 percent in 1997 (Hendrickson et al., 2001). Mergers of chain supermarkets often result in the closure of stores, thereby reducing residents' access to healthy food, and lowered tax base and employment. Another trend, vertical integration, leads to increased consolidation of different activities such as food production, processing, and distribution under the control of single entities.

Today's food system has also contributed to the increased incidence of obesity and diet-related disease; loss and erosion of diverse culinary traditions represented by First Nations and immigrant cultures; and ecological crises including extinction of species, declining aquifers, and deforestation. Government policies sometimes exacerbate these trends due to the increasing political influence of food industry giants.

While there is little doubt that the industrial food system will remain dominant, more communities and regions are acting to resolve some of these problems by developing alternative, local, and sustainable food systems. This Policy Guide offers suggestions for planners to engage in planning that both strengthens community and regional food systems and encourages the industrial food system to provide multiple benefits to local areas.

Specific trends related to the food system's impacts on localities and regions, and examples of positive actions are described below.

- **Loss of Farmland.** Although agriculture is America's dominant land use, with nearly 1 billion acres of land in agricultural use, farmland in metropolitan areas is disappearing at a rapid pace. "Urban-influenced" counties account for more than half (56 percent) the total U.S. farm production, 63 percent of dairy production, and 86 percent of fruit and vegetable production; yet these counties have annual population growth rates more than twice the national average. This rapid growth threatens our capacity to obtain fresh and local food. (American Farmland Trust, 2002).

- **Aging of Farmers.** One fourth of U.S. farmers and half of farm landlords are at least 65 years old; by comparison, about 3 percent of the U.S. labor force falls in this age group (Gale, 2002). Farmers and landlords aged 65 and over own a combined one-third of farm assets. The aging of farmers reflects the weakening of "family farm" institutions, including intergenerational transfer of farm assets. Consequences with implications for planning include the speeding up of the conversion of agricultural land and the consolidation of agricultural land into larger operations.

- **Protecting Agriculture.** Across the country communities are preparing plans to protect agriculture. A countywide plan in Marin County, California, identifies several policies to overcome challenges facing local agriculture and farmers. These include policies to protect
agricultural land from sprawl, protect productive agricultural soils, support sustainable water supplies, and enhance agricultural viability.

- **Farm Bill and Local Areas.** All Titles of the Farm Bill, including nutrition programs, commodity programs, trade, conservation, and rural development, have implications for urban and rural communities and therefore for local planning. For example, as Dallas County, Iowa, urbanizes, its county soil and water conservation district and the Natural Resources Conservation Service of the USDA now work with developers to employ land conservation measures and keep soil on construction sites (USDA Natural Resources Conservation Service, no date).

2. Food System Links with the Economy

- **Globalization of the Food System.** Increasingly, food comes from more distant sources, with serious consequences such as the loss of older local food system infrastructure, and threats to the survival of many U.S. farms. Although the U.S. rightfully prides itself as the breadbasket of the world, in 2006 for the first time, the value of food imported into the U.S. exceeded the value of food exported from the U.S. (USDA Foreign Agricultural Service, 2006). Globalization also leads to greater consumer ignorance about the sources of food. As people know less and less of where their food comes from, how it is produced and with what impacts on communities and the environment, preservation of land and the natural and built resources upon which local agriculture depends becomes more difficult.

- **Rural Decline.** Farms between 50-500 acres and 500-1,000 acres, the largest share of "working farms" and those that fall between local and commodity markets, decreased by about 7 and 11 percent respectively between 1997 and 2002, while those over 2,000 acres have gone up nearly 5 percent. This loss of "the middle" in farming threatens rural communities by making them more economically insecure and changes land stewardship practices handed down over generations. (Kirschenmann et al., no date).

- **Economic Impacts of Local Purchasing.** Robert Waldrop, a 2006 candidate for mayor of Oklahoma City, highlights the under-appreciated economic development possibilities of buying food directly from area farmers. Using USDA data and analyses, he identifies $2.1 billion in economic activity in Central Oklahoma if Oklahoma County residents bought their eggs, poultry, meat, vegetables, flour, and milk and dairy products directly from farmers in the region.

- **A Local Food Purchasing Policy.** In 2006, the Woodbury County (Iowa) Board of Supervisors adopted a "Local Food Purchase Policy," mandating the purchase of locally grown organic food for department events at which food is served. This action has the potential of providing $281,000 in annual food purchases to a local farmer-owned cooperative.

3. Food System Links with Health

- **Farm Policy and Health.** Federal farm policy since the 1950s has encouraged the overproduction (and therefore the driving down of prices) of a few commodities such as corn and soybeans, all with serious implications for farmers, rural and urban communities, and the health of consumers. Support for fruits and vegetables, on the other hand, has been low (Nestle, 2002). Low commodity prices have led to the heavy use by the food industry of products such as high fructose corn syrup and hydrogenated vegetable oils, which are linked with obesity and related illnesses. Processed grocery foods, frozen foods and baked goods represented over 40 percent of supermarket sales in 2000, while produce claimed only 9 percent (Schoonover and Muller, 2006).

- **Obesity.** Obesity and associated costs are a significant concern nationwide. While over 60 percent of Americans are overweight or obese, the effects of obesity are not borne equally across race and socio-economic strata, or even states and localities, thereby generating unequal burden. Similarly, many diet related diseases, such as heart disease, certain cancers, and diabetes are found to be more prevalent among minority populations. In 2000, nearly 16 percent of children and adolescents, ages 6 to 19, were classified as obese (Centers for Disease Control and Prevention, 2002.).

- **Obesity and the Built Environment.** Land use and transportation policies have been implicated in the rise of obesity through both, increased food consumption and reduced
physical activity. Research suggests lower rates of obesity and overweight in neighborhoods where supermarkets offering more healthful food choices are present (Morland et al., 2006). This access is not even however: low income and minority areas contain fewer supermarkets on average; these areas also tend to have a higher density of convenience stores offering fewer healthful choices and higher prices, and fast food outlets (Morland et al., 2002). Because these communities experience lower vehicle ownership rates, problems of access are exacerbated.

4. Food System Links with Ecological Systems

- **Energy Consumption in the Food System.** At roughly eight calories of energy to produce one typical food calorie, today's food system is both energy-intensive and inefficient. The average food item travels at least 1500 miles. According to Thomas Starrs (2005), growing, processing and delivering the food consumed by a family of four each year requires more than 930 gallons of gasoline or about the same amount used to fuel the family's cars.

- **Water Issues in Agriculture.** Sedimentation and chemical pollutants resulting from agricultural practices continue to pose serious problems for fisheries, other wildlife, water-based recreation, and household water use. The Dead Zone in the Gulf of Mexico is one of the largest such examples of depletion of oxygen caused largely by farm runoffs. In 2005, it covered nearly 5,000 acres (National Aeronautics and Space Administration, 2004). In addition, U.S. agriculture is an especially prolific consumer of surface and ground water. For example, 38 percent of irrigation water in California and 66 percent in Texas are pumped from ground water (Pimental et al., 1997).

- **Concentrated Animal Feeding Operations (CAFOs).** CAFOs are agricultural facilities that house and feed a large number of animals in a confined area for 45 days or more during any 12 month period. In 2003, CAFOs, a small percentage of the nation's 238,000 feeding operations, produced more than half the 500 million tons of manure, according to the U.S. Environmental Protection Agency (Centers for Disease Control and Prevention, no date). Health threats from such operations include chronic and acute respiratory illnesses, injuries, infections, and nuisances such as flies, and odor (Bowman et al., 2000). CAFOs are also implicated in spreading stronger strains of E. coli bacteria and environmental problems such as ground water contamination. An emerging and promising method to reduce odors and generate renewable energy from livestock manure in CAFOs is anaerobic digestion (Wilkie, 2005).

- **Loss of Biodiversity.** Across the country, native vegetation (forests, prairie, wetlands) which provides wildlife habitat and performs valuable ecosystem services such as flood control has been depleted or seriously threatened. In Illinois, for example, over 90 percent of all natural wetlands have been lost, the majority to agricultural production. According to noted ecologist Gary Nabhan, the U.S. has lost over 60 percent of all the heirloom crop varieties that were here at the time of Columbus's arrival to the New World; the other 40 percent remains below the radar of the food industry (Mangan, 2006).

- **Fisheries.** In fisheries across North America, the needs of consumers and the long-term sustainability of fishery populations have fallen out of balance due to over-fishing or habitat loss or degradation. Fish populations of haddock, Atlantic cod, red snapper, Pacific herring, Pacific halibut, salmon, and king crab have seen significant declines (American Fisheries Society, no date).

- **Food system wastes.** Wastes at each point of the food system use up local landfill capacity, or if incinerated, increase air pollution. One study showed that nearly 30 percent of all solid wastes are related to food consumption, with half of that being food packaging (University of Wisconsin Department of Urban and Regional Planning, 1997). Natural organic wastes may be a valuable input for agriculture if they can be separated from the waste stream. Such wastes can be fed to hogs, composted and reapplied to the land, or converted into renewable energy through anaerobic digesters.

5. Food System and Social Equity

- **Hunger and food insecurity.** Hunger and food insecurity are prevalent in the United States. The U.S. Department of Agriculture's Economic Research Service (2006) reports
that in 2005, 11 percent of all U.S. households were "food insecure" because of a lack of sufficient food. Black (22.4 percent) and Hispanic (17.9 percent) households experienced food insecurity at far higher rates than the national average.

- **Emergency food assistance.** In 2003-04, requests for emergency food assistance increased by about 14 percent in the 27 cities surveyed by the U.S. Conference of Mayors (2004). About 20 percent of the demand for food went unmet. Fifty-six percent of those requesting assistance represented families with children; 34 percent of adults requesting assistance were employed.

- **Food Stamps.** In 2003, 21.2 million individuals participated in the Food Stamp Program; however, this represented only 60 percent of people eligible to receive Food Stamp benefits. The average monthly food stamp benefit was $83.77 per person (Food Research and Action Center, no date).

- **Supermarket initiative.** Research documents lower availability of grocery supermarkets in low-income areas. In Rochester, NY, planners worked with neighborhood groups to bring a Tops Supermarket to the Upper Falls area, a neighborhood that had long gone without a grocery store. As a result of their negotiations, Tops agreed to renovate three other stores in the city, thereby increasing access to a variety of affordable and healthful food choices (Pothukuchi, 2005).

- **Vacant urban land for growing food.** Inner cities have significant amounts of vacant land that, when used for vegetable gardening by low-income residents, produce multiple health, social, and economic benefits. For example, Detroit has over 60,000 publicly owned vacant parcels, and a vibrant urban agriculture movement that can make productive use of this land, if made available by public agencies that control it (Kaufman and Bailkey, 2000). The Diggable City, a Portland State University graduate planning workshop project prepared for the City of Portland, Oregon, produced a land inventory containing specific sites of publicly owned properties to assess opportunities to expand community gardens and other forms of urban agriculture. This project has educated the community on the significance of urban land as a resource for food production and food security in the inner city (Portland State University, 2005).

- **Immigrants as food sector workers.** The food system's least desirable jobs are worked by immigrants in vegetable harvests, industrial slaughterhouses, and food processing plants. According to the U.S. Farm Bureau, immigrant labor may add up to $9 billion to the nation's $200 billion annual agricultural output (Keller, 2006). It is estimated that of the more than 4 million agricultural workers in the U.S., at least two-thirds are immigrants, 80 percent of whom are from Mexico. Because many are undocumented, they typically receive below-minimum wages, experience substandard living conditions, and make up a large portion of the food insecure.

6. Native/Ethnic Food Cultures

- **Food issues faced by Native American communities.** Native American communities are hit particularly hard by the loss of or threats to ecologies, habitats, and native food ways that included subsistence agriculture, hunting, fishing, and gathering. As Native Americans were pushed into the dominant food system, the incidence of diet-related disease rose rapidly. Diabetes-related mortality among American Indians is over twice that of the general U.S. population (231 percent). In addition, nearly one-fourth of Native American households are food insecure because of inadequate resources with which to meet daily food needs, with one out of 12 individuals so food insecure as to be classified as hungry (Bell-Sheeter 2004).

- **Native Food Planning.** The Oneida Community Integrated Food Systems, established in 1994, started with a task force to address concerns related to poverty and health on the Oneida reservation. Through their assessment of food-related needs and assets, they developed actions to support goals related to increasing employment for Native Americans; educating community members about healthy foods and diets; and producing meats, fruits, and vegetables for both, food security and increased profits.

- **Ethnic Cuisines.** Although Mexican, Italian, and Cantonese-Chinese cuisines are the most sought after dining-out ethnic choices, newer cuisines are gaining a foothold. According to an "Ethnic Cuisines" survey by the National Restaurant Association, Hunan, Mandarin and Szechwan variations of Chinese cuisines, German, French, Greek, Cajun/Creole, Japanese
(including sushi), Asian Indian, Soul Food, Scandinavian, Caribbean and Spanish cuisines have been tried by more than 70 percent of the diners. Between 1981 and 1996, consumer awareness of Asian Indian cuisine jumped 74 percent (National Restaurant Association, 2000).

- **Locally Sourced Ethnic Foods.** Ethnic foods are part of the $25 billion specialty food industry, whose sales jumped 16 percent between 2002 and 2004. Farmers across the country are finding profit in this trend. For example, some Pennsylvania and Maryland farmers are growing n’goyo and gboma — West African vegetables — Thai eggplants, Jamaican Callalou, and Halal lamb products desired by Muslim residents (Paley, 2005).

7. Comprehensive Food Planning and Policy

- **Food Policy Councils.** Over 35 local and state food policy councils have been established in North America in the past 10 years. Broadly representative of groups in the local and regional food system, and affiliated with either city, county, or state governments, these institutions work to strengthen local and regional food systems, among other goals.

- **Community-based Food Projects.** USDA’s Community Food Projects Competitive Grants Program, now in its 10th year, is an important source of funding for food projects that serve low income communities. Currently authorized at the level of $5 million a year, the program has been expanded to encourage more comprehensive food planning. A Farm to Cafeteria legislation was recently enacted but no money was appropriated to implement it. Programs related to the Farmers Market Nutrition Program (Farmers Market WIC) and the Senior Farmers Market Nutrition Program are also important to local communities.

General and Specific Policies

The American Planning Association, its chapters and divisions, and planners in general can use their professional knowledge, skills, and relationships to develop community and regional food planning, and advocate for state and federal policies to support it.

The seven general policies below, accompanied by specific policies and planner roles, suggest concrete ways in which food issues may be woven into current planning activities, and more systematic, comprehensive community and regional food planning may be undertaken.

This Policy Guide links to several Policy Guides previously adopted by the APA, among them sustainability, smart growth, energy, water resources management, solid and hazardous waste management, housing, and farmland preservation. In some of these Policy Guides, elements of the food system are specifically recognized. In others, even though not mentioned, they have a place.

Some common planning themes thread through all policies and are therefore not identified separately under each general policy (unless they are especially crucial):

1. The importance of community participation in all aspects of planning;
2. The usefulness to all general policies of common planning activities in research, plan-making, plan-implementation, conflict resolution, and consensus building;
3. Recognition that all planning occurs in a political context and that political support may be garnered more easily for some issues than others;
4. The existence of tensions between and among general policies, which will require dialogue among stakeholders in particular communities and regions to resolve.

**General Policy #1**

The American Planning Association, its Chapters and Divisions, and planners support a comprehensive food planning process at the community and regional levels.
Specific Policy #1A. Planners support the creation of local and regional food planning mechanisms that integrate major local planning functions (such as land use, economic development, transportation, environment, parks and recreation, public safety, health and human services, and agricultural preservation).

Reason to support
Multiple and complex links exist among food system activities and between food and planning activities such as land use, transportation, and economic development planning. Community concerns about health, economic development, ecological sustainability, social equity, and cultural diversity are also intricately linked to food system issues and to each other. Achieving community-food objectives will require collaborations between groups representing diverse interests such as anti-hunger, nutrition, farming, and environmental issues; span separate government agencies; and include multiple levels of government in dialogues.

Planners could play the following roles:

1. Advocate for, and build support in communities and regions for a more comprehensive approach to food planning, such as through local and/or regional food policy councils or coalitions.
2. Undertake periodic assessments of community/regional food issues, including broad community participation, and develop recommendations for actions.
3. Integrate recommendations emerging from community and regional food planning into comprehensive plans and supporting ordinances, strategic plans, economic development plans, environmental plans, neighborhood or area plans, and plans for specific agencies such as transportation and parks and recreation.
4. Assist nonprofit agencies and public-private-nonprofit partnerships engaged in anti-hunger, nutrition, and agriculture activities by sharing data for planning, implementing, and evaluating programs.

Specific Policy #1B. Planners support the development of plans for building local food reserves and related activities to prepare for emergencies.

Reason to support
Because of the important roles planners play in recommending proposals for the future of their communities, they have the skills and knowledge to also contribute to planning for emergencies and crises — natural or man-made. Due to recent concerns of homeland security and natural disasters such as Hurricane Katrina, and potential threats associated with bioterrorism, climate change, disruptions in transportation systems, and pandemics such as the avian flu, communities around the country are undertaking emergency preparedness plans to protect the health of community residents, meet basic needs, and prepare for post-emergency operations. Maintaining food security at household, community, and regional levels during the crisis and recovering food systems in a sustainable manner soon thereafter are central goals of such preparedness.

Planners could play the following roles:

1. Assist in assessing the community and region's potential food needs during emergencies of different kinds (such as a major earthquake, hurricane, terrorist attack, or the spread of contagious disease) and the capacity of current food sources and distribution systems in the community and region.
2. Partner with appropriate public agency and private stakeholder groups to develop appropriate plans to build sufficient local and regional food reserves for emergencies, including related communications, logistics, and transportation infrastructure, and to restore food system integrity and operation after the emergency.
3. Coordinate with other agencies in the implementation of public outreach and education campaigns to inform the community about food related emergency preparedness.

General Policy #2
The American Planning Association, its Chapters and Divisions, and planners support strengthening the local and regional economy by promoting community and regional food systems.

**Specific Policy #2A.** Planners support integrating food system elements into urban, rural, and regional economic development plans.

*Reason to support*

The food sector is a significant, yet under-appreciated part of local and regional economies. The lack of awareness of the economic significance of the food sector is partly due to the sector's fragmentation and the absence of an overall food planning agency or food department in government. Incorporating food issues into economic development analyses and plans assures that the important economic contributions that the food sector makes to communities and regions are preserved and enhanced.

Planners could play the following roles:

1. Support preparation of area-wide economic development plans that incorporate food production, processing, wholesale, retail, and waste management activities as well as consideration of the impacts these activities have on the local and regional economy in terms of jobs, tax and sales revenues, and multiplier effects.
2. Support efforts to raise public awareness of the importance of the food sector to the local and regional economy.

**Specific Policy #2B.** Planners support developing land use planning policies, economic development programs, land taxation, and development regulations to enhance the viability of agriculture in the region (as identified in the APA Agricultural Land Preservation Policy Guide).

*Reason to support*

In an era of globalization of agricultural commodities, economic viability at the local and regional levels is enhanced by promoting agriculture and food processing for local consumption. In addition to economic viability, planners can help achieve other benefits by taking a comprehensive view of the multiple functions served by rural landscapes adjacent to suburban and urban population centers. They can promote profitable agricultural enterprise farms that preserve resources for future generations while providing significant public goods in the form of beautiful working landscapes, ecological stewardship, and greater awareness and appreciation of the area's agriculture among the general population.

Planners could play the following roles:

1. Conduct assessments of prime agricultural lands that will be affected by current and projected development trends.
2. Analyze factors that support or constrain the viability of agriculture in the region such as high property taxes, access to markets, high cost of capital, and land use regulations that restrict farmers' ability to earn additional income through agri-tourism or farm stands. Special attention in this category may be given to "agriculture of the middle," i.e. farms that fall in between local and commodity markets.
3. Develop or modify policies, regulations, and other tools such as agricultural land preservation zoning, purchase of development rights, transfer of development rights, and partnerships with land trusts, to protect prime agricultural land.
4. Partner with organizations that promote better understanding of farm life for urban dwellers to reduce the urban/rural divide.

**Specific Policy #2C.** Planners support developing appropriate land use, economic development, transportation and comprehensive planning policies and regulations to promote local and regional markets for foods produced in the region.
Reason to support
Planners can help open up more area-wide markets for farmers in the region. Expanding markets for local farmers and processors would not only help them survive economically and preserve unique regional agricultural and food traditions, but also reduce the pressures on some farmers to sell their land for urban development engendered by sprawl. Efforts to combat sprawl would benefit significantly from initiatives to enhance local markets for locally produced and processed foods.

Planners could play the following roles:

1. Develop land use and transportation plans, modify development regulations, and help prepare economic incentive programs to provide accessible and well-serviced sites and other development assistance for year round public markets, farmers’ markets, small-scale processing facilities, and distribution centers for foods produced in the region.

2. Prepare comprehensive and neighborhood plans that recognize community gardens and other forms of urban agriculture, farm/garden stands, and farmers’ markets as desirable civic uses in neighborhoods, and provide sufficient space, infrastructure, and inter-modal transportation access for such uses. Ensure that zoning barriers to these activities are addressed or removed.

3. Through plans, state and federal agricultural policies and funding, and development regulations, support food production for local consumption, direct marketing by farmers, agri-food tourism, and niche marketing of specialized agricultural products such as wines, cheeses, and cherries.

4. Assemble and implement business enhancement and related incentives to help public institutions such as schools, hospitals, colleges, and government agencies, and private food outlets such as grocery stores and restaurants source foods produced in the region.

Specific Policy #2D. Planners support developing food system inventories, economic and market analyses, and evaluation techniques to better understand the economic impact and future potential of local and regional agriculture, food processing, food wholesaling, food retailing and food waste management activities.

Reason to support
More accurate metrics are needed to guide community and regional food-related economic development planning in a comprehensive manner, and in a way that considers direct and indirect impacts. The censuses of agriculture and retail and wholesale trades, national surveys, and many forms of local food assessments are used to understand the relationships between the food system and the other sectors of the economy. Differing data-gathering conventions in these categories can make it difficult to measure relationships accurately. Planners can help to bring different data together and provide comprehensive analyses at community and regional levels on a variety of indicators needed to inform food-related economic development planning.

Planners could play the following roles:

1. Support studies that consider the impact on the area-wide economy of locally oriented food production and distribution activities such as farmer's markets, food co-operatives, community supported agriculture farms, local food processing facilities, community gardens, public markets, niche farming enterprises, and other locally sourced food businesses.

2. Undertake studies assessing trends in farm consolidation, including underlying factors, to inform plans to support "agriculture of the middle."

3. Contribute to the preparation of regional food resource guides that identify organizations and businesses that are involved in local and regional food production, processing, and retailing, the better to educate the public and build links between local producers and local consumers.

Specific Policy #2E. Planners support initiatives in marketing, technical, and business development assistance for small-scale and women and minority-owned farm, food-processing and food retail enterprises.
**Reason to support**
A vibrant local economy supports a range of enterprises run by a diverse group of owners and managers. New and transitioning small-scale farm and food enterprises can benefit from programs that provide production training, build marketing connections, teach business and financial planning, and provide other business services. Community organizations exist in many areas to provide these training and assistance programs.

Planners could play the following roles:

1. Collaborate with agricultural and related agencies and other organizations that provide training, technical assistance, and capital to small-scale businesses and businesses owned by women and minorities engaged in farming, food processing, and food retailing operations.
2. Assist efforts to help regional farmers diversify their products, and produce and market organic and other high-value products desired by consumers.
3. Support the development of community kitchens and related infrastructure, food business incubator facilities, and entrepreneurial urban agriculture projects.

**General Policy #3**

The American Planning Association, its Chapters and Divisions, and planners support food systems that improve the health of the region’s residents.

**Specific Policy #3A.** Planners support and help develop policies, plans, and regulations in land use, transportation, economic development, and urban design so as to increase access to food sources that offer affordable and culturally appropriate healthful foods, especially for low-income households in urban and rural areas.

**Reason to support**
Research suggests that households’ proximity to supermarkets is correlated with positive dietary health. Planning can facilitate the availability of and convenient access to retail grocery outlets. Besides grocery stores, mom-and-pop corner stores, farmers markets, farm stands, ethnic markets, and community vegetable gardens can offer access to healthful foods at low-cost to low-income and ethnic and racial minority households. On the other hand, it should be recognized that sometimes planning decisions can have unintended negative impacts on the development, operation, or use of neighborhood-oriented grocery stores and other food sources that offer healthy, affordable foods; such decisions should be avoided.

Planners could play the following roles:

1. Encourage mixed-use neighborhood design and redevelopment to include small and mid-size grocery stores (e.g., 3,000 to 20,000 square feet), seasonal farmers markets, community-based and government nutrition programs, and open space and related infrastructure for community vegetable gardens to allow residents to grow their own food.
2. Develop area plans and design schemes in ways that encourage safe and convenient pedestrian, bike, transit connections between neighborhoods and the food sources described above.
3. Support transit programs that improve connections between low-mobility neighborhoods on the one hand, and supermarkets, community gardens, food assistance programs such as food pantries and soup kitchens, and health and social service providers on the other, with a view to reducing travel time and enhancing safe and convenient use.
4. On publicly owned lands, such as schoolyards, parks and greenways, and tax-foreclosed properties, support the development of vegetable gardens, edible landscaping, and related infrastructure, and the formation of partnerships with community-based nonprofits serving low-income residents for garden-related programs.

**Specific Policy #3B.** Planners develop and support policies, plans, and regulations in land use, transportation, economic development, and urban design to encourage the availability of healthy
types of foods associated with reduced risk of or occurrence of obesity and poor nutrition leading to diet-related diseases like diabetes and heart disease (especially in and near schools and other predominantly youth-centered environments.)

Reason to support
Low-income, particularly African American and Hispanic, neighborhoods often have a higher density of convenience stores selling junk food, liquor stores, and fast food outlets relative to full service grocery stores that offer a variety of healthy products. This is correlated with higher rates of diet-related disease and mortality in these communities. Youth in disadvantaged neighborhoods are especially vulnerable to the disproportionate availability of such foods.

Planners could play the following roles

1. Assess and map the availability of fast food restaurants in low income neighborhoods relative to the availability of grocery stores offering healthier food options.
2. Explore the feasibility of zoning changes to limit the development of fast food outlets within a specified radius of schools (say, one-half mile) and other youth-centered facilities such as the local YMCA and YWCA and boys and girls clubs.
3. Explore the possible use of sign controls to prevent billboards that market low nutrient/high calorie foods fast foods and other negative food marketing within a specified radius of schools and other youth-centered facilities.

Specific Policy #3C. Planners support, through appropriate land use and zoning, transportation, urban design, and research tools, community-based organizations that develop demand for healthful foods, especially in low-income communities.

Reason to support
Activities to promote healthy diets have to address both the supply and demand side of healthy eating. Although supplying healthful foods tends to require greater attention to physical infrastructure and logistics of food product flows, supply and household demand are also closely linked. In neighborhoods lacking healthful options, households often adapt by depending more heavily on fast food outlets and convenience stores located there. Although planners may have few direct roles to play in increasing household demand for better quality foods, their activities in land use, transportation, and community assessment make them important partners to nutrition and health education groups.

Planners could play the following roles:

1. Undertake neighborhood studies related to the siting of health and social service facilities (that may offer food stamps and other nutrition programs) near retail grocery outlets offering nutritious foods.
2. Support the development of temporary farm stands, urban agriculture projects, and community vegetable gardens on school, park, and community center sites, and near public agency offices and nonprofit providers offering health, human and social services.
3. Promote the provision of community gardens, urban agriculture projects, and community kitchens in multifamily and low-income housing projects.
4. Assist programs that encourage youth to consume healthy foods that they are involved in producing, such as through edible schoolyards, after school gardening and snack programs, and food preparation classes.
5. Assemble and implement business-enhancement incentives to encourage partnerships between convenience stores and neighborhood-based nonprofits that encourage stores to offer healthful foods on the one hand, and educate the community to adopt healthy diets, on the other.

Specific Policy #3D. Planners support, through land use decisions, environmental monitoring, ecological mitigation, and policies related to working conditions of farm and food workers, food safety practices that ensure consumer health.
**Reason to support**

Recent food contamination scares related to spinach and peanut butter have revealed the possible pathways between land use patterns, agricultural operations, sanitary living and working conditions for farm workers, and food safety practices within processing plants, markets, and stores on the one hand and food safety outcomes and related human health on the other. For example, runoffs from concentrated animal operations have been found to taint spinach with strains of E coli bacteria that proved deadly when raw spinach was consumed. Similarly, the use of sub-clinical doses of antibiotics to speed up animal growth has implications for human health in the form of more powerful and antibiotic-resistant bacteria. Finally, the quality of environments and working conditions for farm and food workers, and specifically, the availability of sanitary facilities near farms, are also an important factor for food safety. A further example relates to the high speed of meat processing conveyor belts that creates a higher risk of injury to workers and of fecal material entering the meat, both of which pose significant implications for food safety.

Planners could play the following roles:

1. Support land use decisions, environmental monitoring, and ecological mitigation that prevents potential contamination of agriculture and food products through water runoffs from animal operations, provides sanitary living and working conditions for farm and food workers, and otherwise promotes food safety. In supporting these decisions, additional barriers and costs that potentially may be imposed on especially small and limited resource farmers and ranchers may need to be considered and addressed.

2. Support agricultural and food practices that affirmatively and proactively address worker health and safety in ways that also advance food safety.

3. Assess the possible food safety implications of older buildings housing food markets, grocery stores, and food processing operations, with a view to supporting goals related to food safety and business viability, and consider providing incentives to businesses to enhance food safety.

**General Policy #4**

The American Planning Association, its Chapters and Divisions, and planners support food systems that are ecologically sustainable.

**Specific Policy #4A.** Planners support the creation of community and regional food systems linking production, processing, distribution, consumption, and waste management to facilitate, to the extent possible, reliance on a region's resources to meet local food needs.

**Reason to support**

A core principle of sustainability involves meeting basic human needs, such as food, shelter, and water, via renewable sources as spatially proximate to their consumption as possible. Communities that rely on distant food sources are rendered vulnerable to the vagaries of market decisions, transportation infrastructure, and energy prices over which they have little control. Additional benefits to greater regional self-reliance in food include cutbacks in emissions of greenhouse gases from transporting food products; protection of local agriculture; and a greater likelihood that residents' greater connection to their region as a source of sustenance will lead them to care more about the region's resources, protect them, and balance appropriately the priorities for development versus conservation of regional agriculture.

Planners could play the following roles:

1. Encourage conservation of regional agricultural land, open space, and wilderness resources for agriculture and food systems (as identified in the APA Agricultural Land Preservation Policy Guide).

2. Support the creation of marketing networks to bring together farmers, processors, and purchasers of locally grown and produced foods.

3. Support, as relevant with the use of planning tools, the integration in food production and distribution of sustainability principles and practices, which promote clean air, water, healthy soils, and healthy habitats and ecosystems.
4. Provide incentives and special zoning provisions to integrate locally supported agriculture (e.g., community gardens, urban agriculture, small farms) into existing settlements and new areas of residential development.

Specific Policy #4B. Planners support food system activities that minimize energy use and waste, and encourage the use of local and renewable energy resources.

Reason to support
The historic low cost of fossil fuel has led to the development of highly inefficient agriculture and food system practices. As petroleum prices rise, the costs to consumers increase, critically affecting low-income households’ efforts to be food-secure. Excessive dependence on a fossil-fuel based economy also has significant implications for homeland security; on the other hand, promoting local and renewable energy resources can enhance security as well as the regional economy.

Planners could play the following roles:

1. Develop regional plans and policies that strengthen markets for the region’s food producers so as to reduce long-distance transportation of agricultural products and processed foods.
2. Assist in conducting energy audits to assess amounts and sources of energy used in the region for the production, distribution, and consumption of food. This inventory can identify existing uses of local and sustainable energy resources as well as the potential for expansion in this area.
3. Support as relevant with planning tools, efforts to assess the capacity of regional agriculture for meeting potential energy demands versus regional food needs.
4. Assess the impact of food waste disposal on area landfills and explore possibilities related to recycling food wastes through composting and bio-fuel development.

Specific Policy #4C. Planners support efforts to assess and mitigate the negative environmental and ecological effects caused by and affecting food system activities.

Reason to support
Conventional agriculture, fisheries, and other food system activities create considerable amounts of air and water pollution, loss of topsoil, and extinction of species including those central to the cultural traditions of many ethnic groups and Native Americans. Water pollution from other sources such as mining operations and industrial discharge into waterways, etc., can also affect food systems, through, for example, increased mercury concentrations in fish, fish kills, and loss of habitat. Planners involved in environmental assessment and mitigation activities could look more closely at how food system activities create or are affected by negative environmental impacts. These environmental impacts can also have human health implications, which need special attention. Fisheries play an especially important role in subsistence and commercial food systems and need special consideration to balance human needs with the long term sustainability of the fisheries. Fisheries, like most food-ecosystem linkages described in this policy guide, need greater development in future food planning policy.

Planners could play the following roles:

1. In collaboration with other professionals, explore pathways through which the food system impacts the region's natural environment, fisheries and other wildlife habitats, and ecology, and the impacts of pollution on food systems. This analysis can inform plans to sustain ecologies including those upon which our food system depends, and to minimize harm to them.
2. Assist in assessing the sources of lake and river pollution and eutrophication, and considering ways to reduce such pollution.
3. Assist in assessing solid waste streams at different points of the community’s food system (production, wholesale, retail, consumer, etc.) and considering ways to reduce, reuse, and recycle wastes.
4. Support efforts to reduce and mitigate negative air quality impacts in food system activities, including those contributed by farm activities and the long-distance transportation of food from farm to fork.
5. Support strategies to increase the adoption of water and soil conservation practices in agriculture.

**General Policy #5**

The American Planning Association, its Chapters and Divisions, and planners support food systems that are socially equitable and just.

**Specific Policy #5A.** Planners employ land use, transportation, and other planning tools to increase spatial access to programs and facilities that help reduce hunger and food insecurity for residents in impoverished urban and rural communities.

**Reason to support**

Hunger and food insecurity affect impoverished households in urban and rural communities across the country. Land use, transportation and other policies planners recommend, and regulations they implement, could inadvertently increase the incidence of hunger and food insecurity in low-income neighborhoods. However, planners are also uniquely positioned to help improve low-income people's access to programs and facilities that enhance food security.

Planners could play the following roles:

1. Provide data and mapping support to community and regional food assessments, including the incidence of food insecurity and location of diverse food assets.
2. Develop plans and redevelopment proposals for food insecure areas with sites and incentives for community gardens, entrepreneurial urban agriculture projects, farmers markets, neighborhood grocery stores, and food assistance programs.
3. Investigate the use of appropriate brownfield sites in low-income areas for food production.
4. Develop transportation, community development, and other plans and policies to provide convenient and safe access for low-income households to grocery stores, community gardens, and food assistance providers.
5. Encourage business district revitalization efforts to include support for convenience store sales of fresh foods.

**Specific Policy #5B.** In partnership with community-based organizations, planners support the creation of programs to enhance food-related economic opportunities for low-income residents.

**Reason to support**

Food-related enterprises are among the most common type of small business development and a way for many households to supplement income and achieve economic stability. In the past decade, community-based food projects have sprung up in some low-income urban and rural areas to provide economic opportunities for residents there. Among these are urban agriculture projects on vacant lots where some of the produce grown is sold at farmers markets and to restaurants; food business incubation in community kitchens to create value-added products like salsa and salad dressing; and assistance with opening food kiosks and catering operations. Planners can assist these efforts through land use, zoning, facility location, and support of related community development activities.

Planners could play the following roles:

1. Develop area-wide and neighborhood plans with appropriate sites for facilities (such as community kitchens) and spaces (such as for entrepreneurial community gardens) that support food-related entrepreneurial development for low-income households.
2. Assemble in partnership with other public agencies and community-based organizations, economic development programs and incentives for food-related enterprise development, job creation, and workforce development.

**Specific Policy #5C.** Planners encourage and support food production on the grounds of public agencies and institutions while providing employment to low income workers and distributing products to cafeterias and area food assistance sites.

**Reason to support**
Public institutions such as universities, schools, hospitals, and correctional facilities have public missions and often collaborate and coordinate with local public agencies related to land, infrastructure, and utility issues. They are generally located on large sites with vacant land suitable for growing food, and spend money on landscaping, grounds keeping and management. Some of this money can be put to productive use in growing food for their on-site cafeterias while also providing healthy food and employment related benefits for lower-income residents.

Planners could play the following roles:

1. Develop assessments of land on institutional properties suitable for cultivation and support food production activities on these sites.
2. Explore ways in which these institutions can be linked with community-based organizations in producing food on their sites to provide job opportunities and healthy food for school cafeterias and low-income residents — e.g., programs such as "plant-a-row" that add fresh produce to food assistance provided by Second Harvest Food Banks.
3. Provide site planning, design, and other relevant assistance to these institutions to facilitate food production and distribution.

**Specific Policy #5D.** Planners support resolving issues of rural poverty through land use, transportation, economic development planning and appropriate regulatory measures.

**Reason to support**
Many farm and food sector jobs in rural areas are characterized by poor working conditions, high rates of occupational hazards, rapid turnover, and low rates of union representation. Migrant farm workers and immigrant employees of slaughterhouse and meat packing facilities located in rural communities are most subject to these difficulties. In addition, the increasing number of farm closures can cause farmers to slip into poverty. Planners can recommend policies in land use, transportation, economic development, and social services to improve the quality of life of impoverished rural households.

Planners could play the following roles:

1. Assist the region's farm and food worker organizations in rural food and community assessment and improvement efforts.
2. Undertake assessments of possible links between farm and food workers' work conditions and planning-related decisions (e.g., distance between housing, schools, and work sites, and availability of transportation options).
3. Prepare comprehensive and rural community plans to address the spatial, social and economic needs of low-income rural residents.
4. Explore the development community policies for "fair trade" purchasing by public agencies to ensure that public expenditures in food procurement are fair and equitable to producers and communities in other countries.

**General Policy #6**

The American Planning Association, its Chapters and Divisions, and planners support food systems that preserve and sustain diverse traditional food cultures of Native American and other ethnic minority communities.
**Specific Policy #6A.** Planners support community food assessment and planning to preserve and strengthen traditional native and ethnic food cultures (e.g., fisheries in Louisiana and Alaska and desert foodscapes in New Mexico and Arizona).

**Reason to support**

Native American and other ethnic minority communities contribute to the nation’s diversity of local food traditions which are important to the identity and economic vitality of a region, and the nutritional health of its residents. Unfortunately, recent Native American history has included forced relocations of tribes and dependence on non-native foods (including lard, refined flour, and sugar) leading to a disconnection with traditional food sources and an erosion of traditional food practices that are at the heart of native community life and rituals. The health implications of this history are significant: diabetes and diet-related illnesses are at epidemic proportions in many Native American communities. To a smaller extent, these patterns of dietary health and cultural loss are also familiar in many immigrant communities.

Planners could play the following roles:

1. Assist and support locally based efforts by Native American and other ethnic minority communities, to identify and document community and ecological assets and cultural traditions that are tied to food production, preparation, and consumption (e.g. salmon runs, wild rice and nut-gathering, agricultural fairs, and ethnic and cultural festivals).
2. Support locally based efforts to identify challenges and needs faced by members of Native American and ethnic minority groups in consuming healthful diets.
3. Support locally based efforts to prepare action plans to build on existing assets and cultural traditions that nourish Native and ethnic minority food cultures and to mitigate challenges to them.
4. Assist efforts to develop ongoing community participation mechanisms in food assessments and related planning in First Nations and in communities with a significant Native American or other minority ethnic cultures.

**Specific Policy #6B.** With the participation and collaboration of communities to be served, planners support the development of plans to preserve and restore the natural environment and biodiversity in the region, to revitalize traditional and ethnic food systems that depend on the regional ecology.

**Reason to support**

In many cases, local food systems and diets have been lost or impacted due to environmental degradation, habitat destruction or development (e.g. the Onondaga Lake whitefish, Chesapeake Bay blue crab). Restoration of indigenous and traditional food systems has been shown by research to be linked to improved health of residents and benefits to the local economy. Healthy food systems are important for all regions and must be supported in order to ensure food safety and security, sustainable development, public health and nutrition, and sound environmental management.

Planners could play the following roles:

1. Support efforts by and within Native American and other ethnic minority communities to identify and document indigenous and ethnic food systems that have been degraded or are threatened.
2. Support local efforts to restore or protect native, indigenous, or ethnic food systems.
3. Consider the impact of proposed changes in land-use and other plans on the ability of Native American and ethnic minority communities to sustain food production systems and support the coordination of planning efforts to enhance such systems in the future.

**Specific Policy #6C.** Planners support integrating traditional food systems and related cultural issues into community and regional planning efforts — including comprehensive and economic development plans — and other governance activities.
Reason to support
Diverse local and traditional food practices contribute to a sense of place and help achieve economic, environmental, and health goals of communities. Efforts to integrate traditional methods of food production (such as farming in Amish communities, Navajo shepherding, food gathering, and fisheries) into a multi-functional working landscape require sensitivity to a spectrum of traditions of distinct cultural groups. Additionally, they require effective communication and collaboration across groups in the region and dispute resolution mechanisms. To the extent possible, land use and economic development policies should support the right of farmers, hunters, and food gatherers to practice their occupation in accordance with their religious and cultural norms.

Planners could play the following roles:

1. Support planning that builds on and celebrates the diverse cultural, agricultural, and dietary traditions present in the region.
2. Work with tribal governments and state agencies to address land and resource management issues so as to strengthen Native American food systems including farming, hunting, gathering and fishing and nutritious diets.
3. Work collaboratively to establish mechanisms in the region to minimize and resolve conflicts between tribal governments, other local governments, and state and federal agencies and among different minority groups in communities, so as to facilitate Native and other ethnic minority communities’ efforts to sustain their food systems.

General Policy #7

The American Planning Association, its Chapters and Divisions, and planners support the development of state and federal legislation that facilitates community and regional food planning, including addressing existing barriers.

Specific Policy #7A. APA, its Chapters and Divisions support developing and advocating for programs in the federal Farm Bill to facilitate community and regional food planning discussed in General Policies #1 through #6.

Reason to support
All titles of the Farm Bill affect local areas and therefore what planners can accomplish by engaging in community and regional food planning. For example, the continued availability of food stamps and farmers market nutrition program benefits is important for impoverished households as well as to the vitality of grocery stores and farmers markets. Similarly, rural development programs can help develop value-added food enterprises, renewable energy systems, land use management, and air and water quality enhancement. The Farm Bill also includes many provisions that favor, intentionally or not, larger agribusinesses over smaller farm operations in the distribution of subsidies, design of regulations, and other requirements that impose greater burden on the latter. To achieve the goals of community and regional food planning, many of these provisions will need to be re-oriented. In the end, federal (and state) support is indispensable to communities and regions’ ability to plan for food under normal and emergent circumstances and further the goals of food planning identified in this Policy Guide.

APA, its Chapters, and Divisions could play the following roles:

1. Analyze how different titles of the Farm Bill affect communities and regions, pose barriers to achieving goals of community and regional food planning, and in particular, how they may affect planners’ ability to implement actions recommended in General Policies #1 through #6.
2. In collaboration with other organizations advocating for policies relevant for economic development, public health, sustainable agriculture and food systems, and social justice, develop and advocate for proposals in the Farm Bill to facilitate actions described under General Policies #1 through #6.
3. Develop and disseminate timely action-guides and alerts for APA and chapter membership to build support for the legislative platform advocated by APA.
Specific Policy #7B. APA, its Chapters and Divisions support the development and advocacy of policies and programs outside of the federal Farm Bill to further General Policies #1 through #6.

Reason to support
The food system is complex and intricately linked with other systems such as health, energy, education, economy, environmental protection, and housing. Although the Farm Bill might be a first, seemingly intuitive target of policy advocacy efforts to further objectives suggested in this Policy Guide, effective community and regional food planning may also need to be supported through other federal legislation. For example, programs in the next Transportation Bill could conceivably support small farmers’ needs to bring product to markets, increase transit access of urban and rural households to grocery supermarkets, and renewable and sustainable biofuel development. Legislation related to the functions administered by the Departments of Education or Health and Social Services might help supply more fresh foods from local farms in all schools, or support the development of farmers markets in public health and social service institutions. As an advocate of good planning at the national level, APA can help to direct attention to areas of federal legislation that could support and foster community and regional food planning.

APA, its Chapters, and Divisions could play the following roles:

1. For each general policy statement in this guide, identify and research significant upcoming federal legislative opportunities, rule-making, or appropriations activities that affect that policy, and planners’ ability to implement suggested actions under that policy. For example, programs in the Transportation Bill could be targeted as applying to General Policy #2 (economic vitality), #3 (health) or #5 (social equity).
2. In collaboration with other organizations, develop and advocate for proposals related to legislation, appropriations, or rule-making, to further actions described under policy statements #1 through #6.
3. Develop and disseminate timely action-guides and alerts for APA membership to build support for the proposals advocated by APA.

Specific Policy 7C. APA Chapters support the development and advocacy of state policies and programs to further General Policies #1 through #6.

Reason to support
These reasons are similar to those stated in Specific Policies #7A and #7B, but within the arena of state legislation. State policies, regulations, and programs can provide important resources or pose significant constraints to achieve objectives sought under this Policy Guide. Additionally, states have arguably a greater ability than federal agencies to design and implement policies that support community and regional food planning, such as those that discourage the conversion of productive farmland, ease regulatory burdens on small and moderate farms, and encourage the development of regional food infrastructure.

APA Chapters could play the following roles:

1. Roles similar to those in Specific Policies #7A and #7B as indicated above, but at the state level
2. Chapters could document related activities to enable the broader APA membership to draw lessons from their successes and challenges, and to inform federal policy advocacy.

Specific Policy #7D. APA Chapters support the development of and participation in state food policy councils that provide a comprehensive and systematic focus on statewide food issues and needed actions.

Reason to support
Comprehensive and systematic food planning at the state level could provide a significant impetus to General Policy #1 and others in this Policy Guide. In ways that are currently nonexistent except for a handful of states such as Connecticut, Iowa, California, and Michigan, state food policy councils provide a way for stakeholders in public, for-profit, and nonprofit sectors to come together to
discuss community and regional food concerns, share information, and recommend policies and actions to achieve goals identified in this Policy Guide.

APA Chapters could play the following roles:

1. Conduct research on existing state food policy councils and assess the feasibility of a state food policy council if currently non-existent, including its structure, decision processes, constituents, and relationship to government agencies and legislative bodies.
2. Provide maps, information, and analysis on particular planning issues linking food system and local areas to food policy councils.
3. Develop policy and programmatic recommendations related to those proposed in this Policy Guide for the consideration of and action by state food policy councils to consider.

**Specific Policy #7E.** APA Chapters and Divisions support the development of federal policies related to international trade, humanitarian aid, development assistance, and other categories of international involvement in ways that promote sustainable and self-reliant solutions to hunger and food insecurity experienced in other countries.

**Reason to support**
Across the world, populations in impoverished countries continue to experience hunger and food insecurity at high rates. Half of the global population — nearly 3 billion people — lives on less than two dollars a day, an important indicator of poverty. In an increasingly interdependent world, it is not only incumbent upon wealthier countries to act responsibly to end hunger and food insecurity across the globe, it is also important to redress the adverse impacts of agriculture trade policies on the ability of poor urban and rural households to subsist. Most of the world’s farmers are small-scale farmers; they also tend to have inadequate or precarious access to food themselves. Yet foreign aid for agriculture and rural development has continued to decline over the last three decades. Solutions to hunger and poverty in impoverished countries need to include investments in agriculture, education, health, and essential public goods.

APA Chapters and Divisions could play the following roles:

- Support U.S. international policies related to trade, humanitarian assistance, economic and social development, and conflict resolution affecting impoverished countries, in ways that sustainably increase local capacity for food security and food self-reliance.
- Support U.S. policies and programs for international development that encourage investments in local agriculture, education, health, and essential public goods such as roads, clean water, and electricity.
- Support multi-national non-governmental organizations that increase community capacity in sustainable agriculture and food systems in poor countries, increase food security across the globe while promoting social justice and ecological sustainability, and create learning exchanges between grassroots groups in more and less industrialized parts of the world.
- Support U.S. humanitarian food aid in ways that minimize adverse impacts to agricultural markets in surrounding regions, and especially prevent dumping of excess U.S. agricultural product in these regions.

**Citations in the Text**


**Other Planning and Food System Resources**


**Selected Planning Student Reports on Community Food Systems**


The University at Buffalo, Department of Urban and Regional Planning. 2003. *Food for Growth: A Community Food System Plan for Buffalo’s West Side*. Buffalo, N.Y.: The University at Buffalo, Department of Urban and Regional Planning.

The Food System: A New Addition to the Planning Field

By Jerome Kaufman, FAICP, and Deanna Glosser

Who would have thought that a candidate for mayor of a city of more than half a million people would be running in 2006 on an economic development platform based squarely on buying food from local and regional farmers? That's what Bob Waldorp, president of Oklahoma Food Cooperative, is doing in his quest to become mayor of Oklahoma City. Here's the gist of his campaign pitch:

continued on page 2
continued from page 1 “If the population of Oklahoma County [Oklahoma City comprises 75 percent of the county’s population] bought its beef, pork, poultry, fresh vegetables, flour, butter, cheese, eggs, and milk directly from central Oklahoma farmers, this would pump over $700 million into the marketplace, creating as much as $2.1 billion in economic activity thanks to multiplier effects...by buying locally produced foods directly from farmers, we get to eat the food and still have the money circulating in the economy.”

A quixotic approach to running for local office? Perhaps. But Waldrop’s pitch may be a harbinger of what communities will start hearing more about in coming years from some political candidates, as well as from planners, and even from planning commissioners. Food will not only be a topic of conversation at our dining room tables, but how the food system—from food production down through the food chain to food waste disposal—affects urban and rural areas is likely to be a livelier topic of discussion in our communities.

Beyond the economic development significance for communities of buying food directly from regional farmers, the food system eats across a number of other areas that planners work in to help create more livable communities. Consider the following:

- The food system takes up significant urban and regional land in activities related to agriculture, industry, wholesale, retail, and waste management.

- Jobs in the food sector represent close to 15 percent of the total employment base of many communities.

- Continuing loss of farmland due to urban development pressure contributes to sprawl development.

- The food we eat consumes a considerable amount of energy resources to produce, process, and transport.

- A major source of lake and river pollution in metropolitan areas is due to phosphorous and nitrogen runoff from seasonal farm planting and plowing.

- Rising obesity among adults and youth is a major public health concern in many communities, with costs associated from diet-related illnesses, such as heart disease, cancer and type 2 diabetes, second only to those associated with tobacco use.

- Because poor people have fewer cars, the quality of the local transit system becomes important in affecting their access to affordable food stores.

- Since affordable housing is in increasingly short supply in many communities, lower-income residents face greater risks of hunger because of the graver consequences of defaulting on their rent payment at the end of the month than reducing their food intake.

- Food waste makes up a significant part of many community and regional landfills.

- Food systems have implications for disaster planning and preparedness, as many communities have only a few days supply of food.

Given the numerous ways the food system intersects with economic, environmental, and social facets of community life that planning agencies are involved in, what can planning commissioners and planners do to help strengthen the capacity of local and regional food systems? Following are several suggestions:

- Incorporate food production and other food system policies into comprehensive landuse, transportation, and environmental plans such as promoting more local and regionally produced foods and farmers markets; preserving farmland at the urban fringe; providing low-income residents with greater access to quality, affordable food stores; promoting more sustainable agriculture; and addressing food system issues unique to Native Americans.

- Assess the impact of current planning on the community’s food system by looking for ways that existing plans, development regulations, and routine planning decisions might be undermining the goals of a stronger community food system or aiding its operations.

- Support efforts of nonprofit, civic, and private sector groups that are working to reduce the spread of obesity in the community and the amount of food waste that ends up in community landfills by converting more of such waste to compost.

- Undertake research to assess the community’s food system to show how the food system relates to other planning sectors such as economic development, transportation, environmental, health, and energy planning.

Some encouraging signs have emerged in the past few years indicating that more attention is being paid to food issues by some planners. For the first time in its history, the American Planning Association in 2005 included a full track of sessions devoted entirely to food planning issues at its national planning conference. The food planning track is continued at the 2006 APA conference. In the last two years, several planning journals published special issues exclusively on food system planning topics. And most recently, a group of planners prepared a white paper on food system planning which will likely be a stepping stone to preparing a more in-depth APA policy guide on the subject that could elevate food planning to a much more prominent place in the planning community.

Planning commissioners and planners are in an excellent position to lead the effort to address food system issues in their communities. A healthy food system contributes to a healthy economy, healthy citizens, and a higher quality of life for all community residents.

The white paper is available online at www.planning.org/divisions/pdfs/foodwhitepaper.pdf.
Presentation Narrative: Functional Areas of Practice

Lesson 3

Instructor’s Notes: In order to offer exam candidates the widest range of preparation tools and to accommodate various learning styles, this guide includes scripts or notes that instructors used while recording the instructional videos. Candidates should be aware that these unedited Instructor’s Notes are intended to complement videos, not replace them. To get the maximum instructional value from this guide, candidates should also watch the videos and read any accompanying resources.

SECTION 1 – NATURAL RESOURCES & THE ENVIRONMENT

Environmental Movement

I’m Henry Bittaker from the APA-Florida Chapter and in LESSON 3 on Natural Resources & Environmental Quality we will be addressing the AICP Exam Preparation Sections on Natural Resources & the Environment; Parks, open space and recreation; the Principles and Applications of Sustainable Development; Energy Policy; and Hazard Mitigation & Disaster Planning.

In Section 1 we’ll address Natural Resources & the Environment. We’ll begin by briefly discussing the modern environmental movement that helps protect these resources, before focusing on the resources themselves and some of the planning & regulatory tools that are used to protect them. I’ll address the U.S. conservation/urban parks movements and park and recreational planning in the 2nd section in this lesson.

The roots of a national environmental movement can be traced back to George Perkins Marsh’s 1864 *Man and Nature* that explored the destructive impact of human action on the natural environment. However, it was really in the 1960’s that the explosion of the environmental movement took root, following the expanded public awareness that came about from environmental disasters events such as the Cuyahoga River fires, the Santa Barbara oil spill, and publications such as Rachel Carson’s 1962 *Silent Spring* about the devastating effects of DDT and other pesticides on bird reproduction and the environment.

The resulting public protests, including the first Earth Day in 1970 (pictured), helped lead to the passage of the National Environmental Policy Act (NEPA) under President Nixon, the creation of the EPA, and a series of subsequent national environmental laws in the 1970’s including the Clean Air Act, the Clean Water Act, the Coastal Zone Management Act, the Endangered Species Act, the Safe Drinking Water Act, the Resource Conservation & Recovery Act, and the Toxic Substances Control Act that are covered in more detail in other modules. These early national environmental laws, and those passed since then, have helped protect the nation’s aquatic and marine systems, sensitive upland habitats, groundwater, and air quality, and are covered in more detail in the Spatial Areas of Practice & Plan Making modules.

Aquatic & Marine Systems – Watershed & Wetlands

AQUATIC & MARINE SYSTEMS

Freshwater comprises less than 3% of the world’s water, and originates in the precipitation (i.e. rainfall, snowfall, hail) of the world’s hydrologic cycle. The land runoff from that rainfall forms a watershed, or drainage basin, that flows either towards an ocean, a freshwater lake, or manmade system. A watershed is delineated by the highest points of its drainage topography (see the illustration), and can vary greatly in
Presentation Narrative: Functional Areas of Practice
Lesson 6

Instructor’s Notes: In order to offer exam candidates the widest range of preparation tools and to accommodate various learning styles, this guide includes scripts or notes that instructors used while recording the instructional videos. Candidates should be aware that these unedited Instructor’s Notes are intended to complement videos, not replace them. To get the maximum instructional value from this guide, candidates should also watch the videos and read any accompanying resources.

Narrative:
Hello, I’m Susan Elks with the Pennsylvania Chapter of APA and I will be presenting Lesson 6 of Functional Areas of Practice. This lesson includes 3 sections:

- Economic Analysis and Forecasting;
- Economic development and revitalization; and
- Planning for food systems, health, and social services.

Economic Analysis and Forecasting

- Data driven
- Terminology
  - basic (export) versus non-basic (local)
  - types of shopping centers (neighborhood, community, regional, super-regional)

Narrative:
Data is fundamental to any economic analysis or forecasting. As with any data, it is important to understand the source (such as the Census Bureau, or Department of Labor) and the limitations (such as when was the data collected, what was the sample size, or what doesn’t it cover).

It is also important to be able to discuss economic analysis with the correct terminology. For example, basic industries versus non-basic industries. These are also called export and local industries, with export meaning an industry that exports products or services beyond the local community and local or non-basic meaning an industry that serves the local community.

Shopping centers also have their own terminology, based on their size and reach – neighborhood, community, regional, and super-regional. Of course neighborhood is the smallest, offering convenience goods and personal services with generally less than 100,000 square feet of floor area. Community shopping centers typically have a small anchor store, such as a discount store or junior department store, and range from 100,000 to 450,000 square feet. Regional shopping centers range from 300,000 to 800,000 square feet and typically have one or two department stores as anchors, offering a variety of products such as apparel or furniture. There are also super-regional, with even more anchor stores and square footage.
Economic Analysis and Forecasting

- Economic Analyses
  - Floor Area Ratio
    - FAR = floor space/lot size
    - 4 stories of 2,000 square feet each on a ¼ acre lot…8,000 sq ft/10,890 sq ft = 0.73 FAR
  - Location Quotient - see Plan Making Module
  - Economic Base Multiplier
    - EBM = Total Economic Activity/Basic Sector Activity
  - Shift Share
    - sources of change – national growth share, industry mix, regional shift

Narrative:

There are several different types of economic analysis and forecasting. A very simple measure necessary for project review and economic development is Floor Area Ratio. Floor Area Ratio is the total area of floor space expressed as a proportion of the site, typically discussed in square feet, and often used in ordinances to establish a limit on the permitted Floor Area Ratio. Higher ratios indicate a more dense development.

Location Quotient is a critical economic analysis, and is discussed in detail in the Plan Making Module.

Another analysis is the Economic Base Multiplier. This measures local economic growth and can be expressed in terms of employment, output, or income. The calculation divides the total economic activity by the basic (or export) sector activity to determine the Economic Base Multiplier. The result is an indicator of the ripple effect of a basic (or export) industry – a result of 4, for example, means that for every 1 basic unit (whether an employment unit, output unit, or income unit) there are 4 units created in the overall economy.

Another analysis is shift share, which is a descriptive technique for analyzing sources of employment change in a regional economy by looking at national share, industry mix, and regional shift. National growth share is what part of the regional growth is due to growth in the national economy; the industry mix is the effect of industry trends on the regional economy; regional shift is unique local factors relating to regional employment growth or decline.

More detail on these and other economic analyses are found in the handout on Quantitative Methods.
Presentation Narrative: Functional Areas of Practice (Lesson 6)

**Economic Analysis and Forecasting**

- Impact Analyses
  - Net Present Value
  - Benefit-Cost Analysis
  - Fiscal Impact (including Per Capital Multiplier Method)

**Narrative:**

Moving into impact analyses, there are many different ways to look at impacts. A few are listed here and more are discussed in the handouts on Quantitative Methods. Generally speaking, fiscal impact analyses are criticized for ignoring indirect impacts, focusing on current dollar costs, and ignoring impacts on the private sector or other levels of government. Fiscal impact analysis can also be impacted by existing community characteristics, which can skew results of a similar project located in a different area. Despite these shortcomings, they remain a basic tool for getting a handle on critical financial implications of projects.

Net Present Value is used to show the net monetary value of a project, discounted to present value. If the formula generates a value greater than zero, then the monetary benefits of a project will outweigh costs.

Benefit-Cost Analysis is used to determine both the net monetary value of a project and to weigh monetary values of alternative projects. It is a tabulation of benefits (to whoever they accrue) and costs (to whoever they accrue), to include capital costs and operations and maintenance costs, but ignores secondary impacts that are not quantifiable in terms of money. Like Net Present Value, it discounts to present value. If the ratio results in a number greater than one, then the monetary benefits outweigh the monetary costs. The project with the highest ratio has the superior net monetary value. Alternatives to Benefit-Cost Analysis include Total Lifetime Costs and Annualized Costs, Planning Balance Sheets, and Goals Achievement Matrix. These are discussed in the handout on Quantitative Methods.

Fiscal Impact Analysis is used to estimate the costs and revenues that a proposed development will bring to an area’s government and schools. There are several different types, differentiated by how costs are estimated, the type of development studied (such as residential versus commercial), and what costs are focused on. The most common is the Per Capita Multiplier Method, which is used to estimate average costs of a proposed residential development. Costs are based on the expected number of residents and include costs such as per pupil school district spending rate and the per resident municipal rate for roads, police, fire and other services. Again, more detail on these and other fiscal impact analyses are included in the handout on Quantitative Methods.

**Economic Development and Revitalization**

- Business attraction and retention
- Real estate development
- Work force attraction and retention
Presentation Narrative: Functional Areas of Practice (Lesson 6)

Narrative:

Public sector economic development and revitalization has traditionally fallen into two categories: business attraction and retention, and real estate development. Increasingly, however, both the public and private sector are paying more attention to work force attraction and retention – create a community that people want to live in and businesses will follow.

With regard to business attraction, the existing business community, the local economy, and the area’s demographics and infrastructure need to be studied to determine what can be successful. Some of the economic analysis tools previously discussed are used for this, as well as data from a variety of sources. For business retention, the same data are important, but a regular dialogue with the existing business community is vital.

Real estate development by the public sector requires careful analysis of potential sites, market conditions, and financial feasibility. These activities can range from funds to revamp a community’s streetscapes to multi-million dollar deals for sports complexes, and could be supported by a community development department or a development authority. Increasingly these activities are taken on with some level of public-private partnership to offset public costs. Private sector support can help clear the final hurdles for some projects.

Whether the activity is attracting new business, retaining existing businesses, building infrastructure, or focusing on the work force, communities need an integrated approach that combines the best data and analyses with a strong vision and partnerships to bring all of the pieces together for a vibrant economy.

Economic Development and Revitalization

- Other strategies, incentives, and tools:
  - Industrial Parks
    - aimed at lighter industries, provide appropriate infrastructure and space
  - Research and Development Parks
    - typically near a major university; science parks target early stages and technology parks target production/manufacturing activities
  - Main Street Programs

Narrative:

Listed here are a few of the more common strategies or tools relative to economic development and revitalization. Creation of industrial parks and research and development parks are a strategy to attract and retain business. Both require appropriate infrastructure, such as good highway, port, or rail access for industrial parks, and a strong partner and labor source for R&D parks.

Main Street programs can be officially-designated Main Street programs through the National Main Street Center or part of a local economic development, historic preservation or planning program. Either way,
they are organizations that coordinate across a “main street” area to spur revitalization. If part of an officially designated Main Street, there are certain criteria that need to be met, but advantages result such as technical resources and grant funding.

**Economic Development and Revitalization**

- Other strategies, incentives, and tools:
  - Business Improvement District (BID)
    - Defined area where businesses pay an additional tax or fee to fund projects within the BID boundaries.
  - Business incubators
    - Support program for start-ups with an end goal of freestanding companies (and associated jobs, revitalized neighborhoods, etc.)
  - Tax Increment Financing (TIF)
    - Facilitate private development by earmarking tax revenue for infrastructure investment and other improvements; the earmarked tax revenue is the “increment” between a base value and a higher value once development is complete.

**Narrative:**

Listed here are additional tools or incentives relative to economic development and revitalization. Business improvement districts essentially tax the businesses within the district to fund projects that are important to the well-being of all the businesses – things like streetscaping, security, marketing – items that are above and beyond services provided by the municipality. Depending on how the district is setup and the local enabling legislation, they may be run by non-profits and could also fund projects with grants or other revenue sources.

Business incubators are a business support process that attempts to accelerate the successful development of start-up companies by providing entrepreneurs with targeted resources and services. Examples of things provided through a business incubator are appropriate rental space, flexible leases, shared equipment and services, and potentially assistance with financing.

Tax increment financing, or TIF, is a tool that allows municipalities to promote economic development by earmarking property tax revenue from increases in assessed values within a designated TIF district. The earmarked property tax revenue – which is the increment between the base value a property had and the higher value anticipated after development – is used to finance improvements. The original taxing entities – such as the local government or school district – must accept the base value tax revenue for a established period of time while the increment goes to improvements, typically through a development authority or similar entity. There is debate over whether TIF truly increases economic development or to some extent changes the specific location of development. What’s important to understand is that it is a financing tool that many municipalities have used to spur economic development in specific locations.
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Additional information on economic development issues can be found in the downtown planning lesson in the Spatial Module.

Labor Force/Employment
- Data sources: go deeper than the U.S. Census
- Workforce characteristics
- Training…education…transportation…place-making

[The Georgia Department of Labor collects, analyzes, and publishes a wide array of information about the state’s labor market...providing a snapshot of Georgia’s economy, job market, businesses, and workforce. Data include labor force, employment and unemployment, industrial growth, occupational trends, and wage rates, which show the general level of economic activity and utilization of labor and are increasingly important to remaining competitive in the global marketplace. Georgia Department of Labor]

Narrative:
The statement on this slide paraphrases what the Georgia Department of Labor notes on its website and touches on the types of data that are important and the reason to track it – to remain competitive economically. Economics are part of the core foundation of communities, and all planners need to have a basic understanding of labor force and employment issues.

State labor departments are one source of data; federal entities, such as the U.S. Bureau of Labor Statistics, are another. When working on a small scale, it is important to track down as much specific information as possible, and consider how the workforce characteristics match up – or don’t match up – to the needs of existing and potential employers. Training is one way to bridge gaps between employer needs and employee skills, as well as programs to physically connect workers with employers – such reverse transportation programs. In considering this, it’s also important to think more long-term. As noted previously, economic development and revitalization has shifted its focus to include longer term education efforts and place-making.

Social and Health Services
- Public health…homelessness, unemployment, aging in place, senior communities, childcare programs…implications for transportation, zoning, housing…
- Federal and state programs and funds, often local or regional administration
- Non-profit partners
- Estimating and serving needs: schools, libraries, medical facilities, childcare facilities, senior living facilities

[APA Policy Guides: Child Care and Homelessness]
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**Narrative:**

Social and health services respond to public health needs, which are more closely associated with planning than you might first think. Unemployment and homelessness are the flip side of economic development and housing; childcare programs have implications for future education levels, as well as current employment prospects for parents. Healthier communities are in part a result of land use patterns that encourage physical activity and readily available healthy foods. The built environment has a critical impact on public health, and regulations should encourage and support walkable neighborhoods, complete streets, safe routes to school, and design that supports aging in place for the senior population.

Funding for social and health services is often from the federal and state level, but is distributed at the local level. Non-profit partners can be critical in implementing programs and getting services out to those in need.

Planners need to be working across sectors to help create a built environment that supports healthier lifestyles. We have traditionally worked in areas such as projecting future need for schools, libraries, senior living facilities, and childcare facilities, but planners more and more are being called on to impact public health with their work.

**Narrative:**

These next few slides explore how planning can help create more sustainable food supply systems.

A food system includes all the growing, processing, distributing, retailing, consumption, and waste disposal activities associated with food. A food system is fed by local, regional, and global systems of production and consumption. Since all of us must eat to survive, everyone is a stakeholder in the food system.

Listed are some of the major trends affecting food systems and having implications for planning:

- Rapid growth threatens our capacity to obtain fresh and local food. Urban-influenced counties account for more than half of total U.S. farm production—including 86 percent of fruit and vegetable production—and yet these counties have annual population growth rates more than twice the national average.
- Increasingly, food comes from more distant sources. This brings serious consequences such as loss of local food system infrastructure, threats to the survival of U.S. farms, and food prices that are affected by global demand, energy markets, climate change, land degradation, and water scarcity.
- Federal farm policy since the 1950s has led to the overproduction and low cost of a few commodities such as corn and soybeans, with serious implications for farmers, rural and urban economies, and consumer health. Support for fruit and vegetable growers, on the other hand, has been low.
- For the first time in history, the world has as many overweight people as undernourished people. Obesity and associated costs are a significant concern. Over 60 percent of Americans are overweight or obese and 17% of all U.S. children and adolescents are affected by obesity—triple the rate from just one generation ago. And although there is more than 4,000 calories per person
per day in traded foods, an estimated 14 ½ percent of American households were food insecure at least some time in 2012, meaning they lacked access to enough food for an active, healthy life for all household members. Over 2 million households – almost 2% of all households – are more than 1 mile from a supermarket and lack a vehicle.

- At roughly eight calories of energy to produce one food calorie, today's food system is both energy-intensive and inefficient. From farm to table, the average food item travels at least 1,500 miles. Waste at each point of the food system takes up local landfill capacity, or if incinerated, increase air pollution. One study found that nearly 30 percent of all solid wastes is related to food consumption, with half of that being food packaging.

- The U.S. has seen a decline in working farms of 50 to 1,000 acres. This loss of "the middle" in farming threatens rural communities by making them more economically insecure and changes land stewardship practices handed down over generations. One fourth of U.S. farmers and half of farm landlords are at least 65 years old. This group owns a combined one-third of farm assets.

- Statistics suggest that local food markets account for a small, but growing, share of U.S. agricultural production. While there is no consensus on the definition of "local" in terms of the geographic distance between production and consumption, defining "local" based on marketing arrangements—such as farmers selling directly to consumers at regional farmers’ markets or to schools—is well recognized. For smaller farms, direct marketing to consumers accounts for a higher percentage of their sales than for larger farms.

**Narrative:**

Planners can play important roles in helping to balance the need for an efficient food system with the goals of economic vitality, public health, ecological sustainability, social equity, and cultural diversity.

The APA Policy Guide on Community and Regional Food Planning outlines general and detailed policies that indicate how planning can contribute to stronger, sustainable, and more self-reliant local food systems.

In general, planners can help support:

- Comprehensive food planning processes at the community and regional levels;
- Strengthening the local and regional economy by promoting local and regional food systems;
- Food systems that improve the health of the region's residents and that are ecologically sustainable and socially just and equitable;
- Food systems that preserve and sustain diverse traditional food cultures of Native American and other ethnic minority communities; and
- Development of state and federal legislation to facilitate community and regional food planning.
Access to healthy, low cost food helps assure the health, safety, and welfare of citizens as much as the traditional services governments provide. In the realm of planning, there are a number of tools that can help support local food systems.

The comprehensive plan is the leading policy document for achieving sustainable practices and is an important planning tool for regional food production capacity. Comprehensive plan policies can address farmland conservation through urban growth boundaries and transfer of development rights programs.

Land use and development regulations in zoning and other ordinances can significantly influence the capacity to produce, process, distribute, and sell food in a jurisdiction. Local regulations may contain unintended barriers to obtaining sustainable, locally produced, fair trade, and healthy foods. In a local government code, look to include and pay attention to:

- Definitions for terms such as urban farms and community gardens. Often urban agriculture is interpreted as an “open space” use but is not specifically identified in the definition for open space.
- Provisions for larger-scale cultivation in urban areas - Urban farms are especially adept at specialty crops such as herbs and micro-greens that tend to be in high demand in cities but do not transport long distances well.
- Community gardens - allowing them by right in zoning districts where people live, work, and study.
- Front yard vegetable gardens or rooftop gardens – are these permitted?
- Consider if aquaculture, raising of small farm animals (such as chickens, rabbits or goats), or beekeeping are allowed in conjunction with urban agriculture uses.
- A broad range of agricultural and agricultural support uses such as production and distribution facilities – traditional agricultural districts should allow for these uses. Provisions for other types of uses, such as agri-tourism and conservation subdivisions, can also help support a farm’s bottom line.
- Produce sales - Allowing the sale of locally/regionally produced agricultural products at farmers markets and produce stands can help create and sustain a more robust local food system, generate income for growers, and create incentives for use of under-utilized properties for food production. Supportive regulations governing the use of one’s home for cottage food industries (such jams, pickles and baked goods) provides other retail opportunities.

An ombudsman in the development review process can assist developers in designing context sensitive development in agricultural areas.

A local government may consider the use of incentives to promote and sustain local food systems. Examples of incentives include:

- Providing density or height bonuses or expedited permitting for new developments that set aside land for food cultivation in landscape areas, on green roofs, or off-site. Similar incentives could target fresh food grocers in food deserts or mixed use developments;
Conservation easements are another method to support local food systems, whether used independently or in conjunction with transfer of development rights. Government entities could also make public lands available for cultivation by urban farmers and community organizations. A use agreement between the landowner and the farming entity outlines the terms agreed to including any fees, timeframes, and maintenance responsibilities.

Additionally, food policy councils provide a forum for stakeholders from diverse food-related sectors to examine how the food system is operating and to develop local solutions. They can address issues such as:

- Food marketing, distribution, and processing infrastructure;
- Best practices training oriented to small farms, urban farms, and community gardens;
- Recovering or recycling of food from the waste stream; and
- Identifying vacant urban land for growing food.

This concludes Lesson 6 of Functional Areas of Practice.
Wetlands have a multitude of definitions, but are generally areas that saturated with water, either permanently or seasonally, such that their vegetation and animal components constitute a distinct ecological system. In general, wetlands function as transitional ecosystems between terrestrial and aquatic/estuarine and marine systems where deeper water occurs and any vegetation is covered by fresh, brackish or saltwater. Wetlands vary widely in their hydric (wet) soils, topography, climate, hydrology, water chemistry, vegetation, and ecology. Traditional examples of wetlands include tidal and non-tidal marshes, swamps, bogs, and fens, including temporary wetlands, such as prairie potholes, vernal ponds, wet meadows and seepage slopes. Such ephemeral wetlands are often important to a wide variety of species as habitat, especially for some amphibian species, as they usually lack fish predators, and may also act as a required seasonal source of water and food during waterfowl migration or breeding. Besides acting as habitat and nursery areas for many species, wetlands serve important water quality treatment functions, help absorb and slow floodwaters, stabilize stream banks, lakes and coastal shores, and provide human recreational opportunities (e.g. bird watching).

Wetlands that are “waters of the United States” (i.e. in essence, part of the navigable waters of the U.S.) are considered “jurisdictional” and subject to regulation by the U.S. Army Corps of Engineers through Section 404 (dredge and fill) provisions of the Clean Water Act. Non-jurisdictional (isolated or temporary) wetlands are often addressed by the states, through state or local planning and regulation.

The protection of wetland functions from land use impacts may be accomplished through outright onsite preservation, enhancement, restoration, creation, or wetland exchange (aka “offsite mitigation” or “wetland banking”) where a similar wetland, often of higher ecological value, is protected and managed offsite in exchange for onsite development.

Aquatic & Marine Systems – Lotic & Lentic Systems

Streams and rivers are primarily formed from the precipitation runoff from land, and the resulting flow within a confined channel and banks. When groundwater flows into a moving water body, that water body is known as “gaining” from the groundwater (i.e. a “gaining” stream). Conversely, when a stream is losing water by recharging groundwater, the system is referred to as a “losing” stream. The ecological systems formed by a flowing (or “lotic”) water body typically differ significantly from those in still water (or “lentic”) ecosystems, such as ponds or lakes, due to individual plant and animal specializations to live in flowing water. The flows in lotic systems have frequently been affected by physical bank or floodplain alterations, dams, and over-withdrawals for human consumption or irrigation. Two major examples of the latter situation are the Colorado River that actually runs dry most years before reaching the sea, and the Apalachicola-Chattahoochee-Flint River Basin that is the subject of an ongoing Tri-State water war between Florida, Alabama and Georgia over the allocation of these water resources to upstream Atlanta (Georgia’s human consumption), versus downstream environment/fisheries (Florida’s endangered aquatic species and its oyster/shrimp industry) and power generation and navigation (Alabama and Florida).

Ponds and lakes are standing (or non-moving) water bodies, that are either natural or man-made (e.g. Lake Mead formed by the damming of the Colorado River). Their ecology responds to a variety of environmental features, such as their water level regime (particularly depth and duration of flooding), nutrient levels, shading, climate, clarity, and salinity. As previously mentioned, some small ponds may be
ephemeral (temporary) in nature, or even created by animals (e.g. beavers and alligators). The Great Lakes are so large and deep, that they form the largest group of freshwater lakes on Earth, containing approximately 21% of the world's surface fresh water. Lakes are often characterized by the amount of nutrients and productivity they contain as being either oligotrophic (low nutrients, low productivity), mesotrophic (medium nutrients, medium productivity), eutrophic (high nutrients, high productivity) or hypereutrophic (very high nutrients, overproduction). Oligotrophic lakes are typically clear, highly oxygenated lakes with low phosphorus levels, often supporting game fish species like lake trout, whereas eutrophic and hypereutrophic lakes are more characterized by their respectively increasing low transparency, high phosphorus levels, the presence of significant algal blooms and resulting low oxygen levels. One note on algal blooms: in freshwater systems, phosphorus is usually the missing nutrient that helps trigger algal blooms; in marine systems, the missing nutrient is usually nitrogen; and where marine and aquatic systems meet, the resulting estuarine system can be either phosphorus or nitrogen limited.

Aquatic & Marine Systems – Estuaries & Marine Systems

Where rivers begin to meet an ocean and measurably dilute oceanic waters, brackish water estuaries are formed, one of the most productive natural habitats in the world that are important for more than 75% of the nation’s commercial fisheries. Some species, such as the American oyster, live predominately in estuaries where they better escape some of their main marine predators. Other adult marine species, like herring and pink salmon, spawn or, as juveniles, feed in estuaries where they can grow up before returning to the sea. Within estuaries, some of the important, highly productive habitats include salt marshes, intertidal flats, oyster reefs, open bay waters, bare bay bottoms, aquatic vascular plant beds, and in the more saline portions of the estuary, seagrass beds. Besides their commercial fisheries role, estuaries are important as recreation and tourism areas, serve as major commercial shipping centers, and provide important habitats for migratory bird species.

Unfortunately, the very productivity of estuarine areas has long attracted human use and settlement. U.S. estuaries have been heavily impacted in the past, and continue to face major threats from overuse and development such as the loss of wetlands, water quality pollution, dredging, filling, overfishing and the upstream alteration of freshwater flows.

Marine & coastal systems in the U.S. range from the arctic ecosystems of Alaska to the temperate rocky shore, kelp or sandy bottom systems off most of the coastal states to the subtropical-tropical seagrass & coral reef systems off Florida and Hawaii. These sensitive ecosystems face many of the same man-made threats as estuaries, including the impacts of offshore oil drilling.

The federal response for protection of the nation’s estuaries and marine systems has been through mandatory permitting programs, such as the Section 404 dredge and fill program run by the U.S. Army Corps of Engineers; federal designations, such as the National Marine Sanctuary and National Estuarine Research Reserve System designations; and federal-state partnerships in state Coastal Zone Management programs. The Coastal Zone Management (CZM) Act requires federal projects and activities such as federal permitting, through federal consistency review, to be in essence subject to specific agreed upon state laws and regulations in exchange for the state’s adoption of an approved Coastal Zone Management program (currently involving 34 states). The Act requires federal agency activities to be fully consistent with the state’s approved coastal management program, unless full consistency is prohibited by federal law (e.g. national security activities). Federal permit and funding decisions (i.e., “indirect” activities) must be fully consistent with the state’s approved coastal management program. The National Marine Sanctuary System currently protects 14 marine areas that encompass more than 150,000 square miles,
such as the seagrass beds of the Florida Keys National Marine Sanctuary pictured in the photo. The National Estuarine Research Reserve System encompasses more than 2,000 square mile of coastal and estuarine systems in the U.S.

Groundwater

An aquifer is a subsurface geologic unit capable of yielding usable amounts of groundwater. The aquifer may be either “unconfined” (i.e. recharged directly from the ground surface, a so-called “surficial” aquifer with its top being the water table), like the Unconfined Aquifer shown in the drawing, or “confined” (i.e. separated from surface recharge directly above it by an impermeable confining layer, and, if recharged, by an area further away where the impermeable layer doesn't exist), like the Confined Aquifer shown in the same drawing. Three main types of aquifers occur in the U.S. – sand & gravel, fractured rock, and limestone or karst formations, with groundwater providing about 20% of the nation’s overall water use. Over 2/3 of the groundwater withdrawals are for irrigation purposes, with California, Texas, and Nebraska comprising the largest national users of groundwater.

The legal water rights to that groundwater (and also to surface water supply sources) vary greatly by state in the U.S., but generally follow two main systems of water rights. In the water-rich eastern United States, the old English common law system of “reasonable use” or riparian rights is generally used. In the arid western U.S., the “prior appropriation”, or “first in time, first in right” system of water ownership prevails, meaning that water is essentially “owned” by the first users of that water.

The use of aquifers for water supply can be sustainable, as long as recharge exceeds withdrawals. However, in many areas of the country, aquifer levels are rapidly declining as water is “mined”, either from systems that are not being replenished as quickly as withdrawals, or from aquifers not being actively recharged. This is occurring to the nation's largest aquifer, the Ogallala Aquifer, that runs across eight states from Nebraska to Texas, and which has one of the fastest-declining groundwater reserves in the country. Other threats to aquifers include water quality pollution by nitrogen, bacteria or viruses from septic tanks, agriculture, stormwater runoff, or landscape over-fertilization, industrial chemical contamination, coastal salt-water intrusion, and factors affecting their recharge capability such as the development of significant impervious surfaces within their prime recharge area.

Aquifers are protected by a variety of federal, state and local laws, including the Safe Drinking Water Act that establishes drinking water standards and protects both drinking water and its sources. Aquifers that supply 50 percent or more of the drinking water for a populace, and for which there are no reasonably available alternative sources should the aquifers become contaminated, are known as “Sole Source” aquifers and provided special protection by EPA. Examples of such aquifers include the Edwards Aquifer in San Antonio, Texas (the country’s first designated Sole Source aquifer) and the Biscayne Aquifer that services southeast Florida, including Miami-Dade County.

Upland Habitats

Terrestrial communities in the U.S. can generally be placed within the four broad categories of forests, shrublands, grasslands, and deserts. Certainly, other unique, sometimes wetter, terrestrial communities such as tundra exist, but it is these four broad upland habitat types (and their associated species) that experience the majority of direct development and agricultural impacts. Typical threats include deforestation; conversion to agriculture or destruction by development; habitat fragmentation; contamination with pesticides, fertilizers or other chemicals; microclimate alterations; introduction of non-native species, introduced mortality (e.g. panthers & car fatalities, or utilizing native species such as
gopher tortoises as a human food source) and key changes to important aspects of an ecosystem’s functioning (e.g. elimination, alteration or suppression of the natural fire regime that fire-adapted systems like the Everglades or the Southeast’s Longleaf Pine–wiregrass ecosystems rely upon to renew themselves).

These threats can ultimately result in the imperiling or elimination of unique habitats and the specialized species that depend on those habitats. The federal Endangered Species Act was passed to help address the protection of these disappearing endangered and threatened species and their “critical” habitats. Unfortunately, today over 1,200 plant and animal species are listed as endangered or threatened, with the state of Hawaii leading the list with over 100 species. Once listed, the U.S. Fish and Wildlife Service is responsible for scientifically defining all “critical habitat” areas that are essential to the conservation of the species, and for the development of a recovery plan to help ensure recovery of the species (except in aquatic and marine environment where the National Marine Fisheries Service takes the lead in this designation). Like with wetlands protection, many states have their own more expansive state programs listing state endangered, threatened and rare species, each with their own set of state regulations.

Planning Tools & Techniques

Beside outright land acquisition and federal/state programs, natural resource protection can be accomplished through a variety of planning tools and techniques, including zoning. One of the newest zoning developments is the increasing use of transect-based codes (see the slide), that builds zoning categories based on the transitioning continuum from the natural (wilderness, T1 zone) to the urban core (T6 zone) and utilizes zoning standards appropriate to restrict or allow development accordingly, such as found in Duany’s “SmartCode” that attempts to combine New Urbanism and Smart Growth principles. Other techniques that are used are Urban Development/Urban Growth Boundaries that limit the areas where urban development or infrastructure will be supported within rural areas, Large Lot Zoning, Cluster Zoning, Down Zoning, environmental overlays, the use of open space and buffer requirements to help shield natural systems from developmental impacts, and special review programs like the Development of Regional Impact (DRI) process that several states use to address the impacts from very large developments.

Some jurisdictions have successfully utilized the “Purchase of Development Rights” (PDRs) or the “Transfer of Development Rights” (TDRs) to protect environmentally sensitive areas, agriculture, or open space. Other jurisdictions have voluntary and/or mandated conservation easement programs that limit the development and activities that remain on the land, either for an extended period of time or in perpetuity (the latter allows for federal, and frequently state, tax breaks).

Also, private non-profit organizations have been formed in different versions of a “Land Trust” to help protect natural or agricultural lands within a particular locale, state or nationally. The largest such environmental land trust in the country is the Nature Conservancy, which I once worked for as a scientist. Such land trusts can often acquire environmentally sensitive land more easily, often cheaper and faster than many state or local governments, and they subsequently sell much of their acquired lands to governmental agencies at cost or below cost.
SECTION 2 – PARKS, OPEN SPACE & RECREATION

National Conservation Movement

The American conservation movement had its roots in Emerson’s *Nature* essay and Thoreau’s 1854 publication of *Walden* and their common reverence for nature, but it was George Perkins Marsh’s 1864 publication of “*Man and Nature*” which documented the effects of human action on the environment that helped launch and influence the U.S. conservation movement. By 1872, the Yellowstone area had been the subject of several private and government funded expeditions, and the resulting publicity and the photographs from the Hayden geological expedition of the area helped convince Congress to establish Yellowstone National Park as the world’s first national park in Montana and Wyoming.

John Wesley Powell had been leading similar expeditions throughout the West, including one down the Colorado River that was the first known passage through the Grand Canyon. Based on his and others experience, in 1878 the “*Report on the Lands of the Arid Region of the United States*” was published, acknowledging a rainfall divide at the Great Plains’ 100th meridian between the arid West and the wetter East, and included a regional plan that promoted western settlement and western water conservation.

John Muir was a Scottish-born American naturalist, writer and early advocate of wilderness protection and is often considered as the “Father of the National Parks” after his successful petitioning of Congress for the establishment of Yosemite and Sequoia National Parks in 1890. In 1892, Muir helped create the Sierra Club to promote the protection and preservation of the natural environment, and influenced President Teddy Roosevelt, a staunch conservationist, to create the United States Forest Service in 1905. Roosevelt named respected forester, Gifford Pinchot, as the first agency head. Unlike Muir, Pinchot promoted not just the pristine preservation of the nation’s forests, but their “wise use”, or conservation, and the continued allowance of multiple forest uses, including selective logging.

Urban Park Movement

Boston Common is likely the oldest urban public park area in the U.S., dating back to at least 1728, although the first major landscaped city park is usually considered to be New York City’s Central Park, designed in 1857 by Frederick Law Olmsted, Sr., and Calvert Vaux. Olmsted is often considered the father of American landscape architecture and his design firm contributed to more than 2,000 city parks and public grounds, including the U.S. Capitol Grounds; the 1893 World's Columbian Exposition in Chicago; the Biltmore Estate in Asheville, N.C.; the country’s first coordinated system of public parks and parkways in Buffalo, NY; and the 1,100 acre chain of interconnected parks and waterways in Boston known as the “Emerald Necklace” that incorporates Boston Common into its design.

The large, “city serving” urban parks of the late 19th century gradually gave way to the smaller, early 20th century neighborhood playgrounds, parks and field houses serving new immigrant workers and their children, partly as a means of social reform, and also as a means of relief from overcrowded housing conditions and congestion.

By the 1930s, another transition was taking place in urban park planning, led by New York’s Robert Moses. He began to focus much of his park planning on the provision of more activity-based recreational facilities, such as baseball and football fields, swimming pools, basketball and tennis courts, skating rinks and beach swimming areas with automobile access and parking, such as Jones Beach.
Park planning changed again, beginning in the mid 1960’s, with the emergence of a realization that any open urban space could potentially serve as a recreational or park space, and become part of an urban network of valuable public open spaces. Examples include pocket parks, tot lots, parklets, and other uses of small urban spaces previously thought unusable. Today, urban park planning includes previous trends, but does so in a manner where the parks are recognized to provide a multitude of benefits to their users and the broader public interest. Besides providing traditional natural and recreational benefits, urban parks today can help provide for community revitalization and citizen engagement, safer neighborhoods, improved public health, better educated children, pollution control, increased tourism, arts and cultural experiences, and by doing so, play a more integrated role in our urban environments. As many of these topics are covered elsewhere in these modules, we’ll not further address them here, although this section’s materials and links will provide additional resources on these topics, such as APA’s series of eleven City Parks Forum briefing papers.

Parks: Types & Sizes

Parks come in all types and sizes, in either public or private ownership, from 50 square foot urban public parklets (pictured) to national parks thousands of square miles in size. In its 1996 publication Park, Recreation, Open Space and Greenway Guidelines, the National Recreation and Park Association has developed a classification system for parks and open space that I’ll partly make use of here.

A MINI PARK is “used to address limited, isolated or unique recreational needs” less than one acre in size. Examples include PARKLETS that are privately funded miniature parks situated on underutilized public paved spaces such as parking spaces that typically provide a public meeting space with benches, chairs, and planters; POCKET PARKS that are small public parks, often created around a monument, historic marker or art project, that are on small vacant lots or irregular pieces of land, but which are usually too small for active recreation; and TOT LOTS that are small play areas specifically designed for use by young or pre-school children, and, when part of a development proposal, may be a TURN-KEY PARK that the developer turns over to a homeowners association totally built, ready to be used.

NEIGHBORHOOD PARKS are the basic heart of modern urban park planning, and are usually 5-10 acres in size serving an area one-quarter to one-half mile in radius that is not separated from the site by major roads, lakes or wetlands. They often involve youth sport facilities, and are often connected to their neighborhoods by sidewalks or trails.

COMMUNITY PARKS are typically larger, 30 to 50 acres in size, and serve multiple neighborhoods within a half-mile to three mile radius, usually with multiple purposes such as providing both recreational areas and open space.

LARGE URBAN PARKS are even larger in size, 50 to hundreds of acres in size such as Central Park in New York City, and serve a large citywide service area with a wide variety of passive and active recreational needs (e.g. passive = walking, bird watching, horseback riding; active = “infrastructure dependent” tennis courts, baseball fields, skateboard park).

REGIONAL PARKS are generally larger than 100 acres in size, serving multiple jurisdictions, are often a county park, and frequently with a primary purpose of environmental protection and the provision of passive recreation. However, in some areas these regional parks may be more centered on active recreation, or cultural and historic sites.
STATE/NATIONAL PARKS provide services similar to regional parks, but on a much larger scale, and are typically focused on resource protection, historic battlefields, cultural heritage, or passive tourism. Over 6,600 state parks exist in the U.S., drawing almost three times as many annual visitors as our National Parks.

The 1906 Antiquities Act allowed Presidential NATIONAL MONUMENT declarations without Congressional approval for pre-historic and historic landmarks, or for sites of scientific interest. President Teddy Roosevelt declared Devils Tower in Wyoming as the first national monument in 1906 (pictured).

NATIONAL HERITAGE AREAS are individually designated by Congress to encourage historic preservation of an area due to its specific natural, cultural, and historic resources that create a nationally important landscape relevant to local interests and needs. Unlike National Parks and Monuments, National Heritage Areas are not owned and managed by the National Park Service, which has mainly an advisory role. An example is the Erie Canalway National Heritage Corridor encompassing 234 municipalities, whose federally-appointed Erie Canalway Commission is tasked with managing activities of the National Heritage Corridor while receiving technical assistance from the National Park Service and funding through Congressional appropriations and privately raised funds. The Commission’s Preservation and Management Plan received APA’s National Award for a Comprehensive Plan in 2008.

Parks: Unique Types

Parks are often developed for a special use or are characterized by park planners as a special type. One example is a GREENWAY, such as the one shown on the slide, which is set aside for natural resource protection, as a wildlife corridor, as buffered open space or for aesthetics, while typically providing for passive recreational uses. They may be urban, suburban or rural; be large or small; include lakes, streams or even restored or created green areas; be stand-alone or part of a larger park system interconnected with other parks or locations, such as Boston’s Rose Kennedy Greenway and the Emerald Necklace, the latter designed by Frederick Law Olmsted, Sr. PARKWAYS are linear parks that also serve as transportation corridors between public parks, historic sites, major institutions, and business centers, which can be either maintained green space or natural areas.

ATLETHIC COMPLEXES are often 20 to 80 acres in size, and planned to consolidate either Youth or Community sport activities in a single, or a few, locations. Community facilities often service both youth and adult sporting activities, while in larger urban areas, separate, dedicated youth facilities are often constructed and may include a variety of youth sports facilities.

PARK-SCHOOLS are the name given to educational facilities whose recreational facilities are used to provide general community public recreational facility needs, especially those of an indoor nature (e.g. indoor baseball courts). The joint use of such facilities is sometimes formalized through a school-community agreement, often with community funding committed for facility maintenance.

The SPECIAL USE park designation covers a broad range of parks and recreation facilities oriented toward single-purpose uses, such as a nature center, historic site, equestrian center, skate park, performing art center, campground, aquatic center, public golf course, or public meeting place like a plaza, public square or town center.
Parks: Plans, Funding & Standards

The LWCF (Land & Water Conservation Fund) was passed by Congress in 1964 and established a funding source for both federal acquisition of park and recreation lands, and matching grants to state and local governments for recreation planning, acquisition and development. In order to be eligible to receive the state match grants under the federal program, each state must prepare a State Comprehensive Outdoor Recreation Plan (SCORP) and update it every five years. The plans typically: (1) Address the demand for, and supply of, local, state and federal recreation resources within the state; (2) Identify the needs and new opportunities for recreation improvements; and (3) Establish an implementation program to meet those goals. Once a state’s plan has been approved by the National Park Service, all grant applications submitted must be in accord with the priorities listed in the SCORP.

In 1978, Congress passed the Urban Park and Recreation Recovery (UPARR) program to provide matching grants and technical assistance to economically distressed urban communities, as a complement to the LWCF program. The purpose of the program was to provide direct Federal assistance to urban localities for the rehabilitation of critically needed recreation facilities, but has remained unfunded since 2002. However, facilities previously rehabilitated under the funding provided by the Act continue to be protected against conversion to non-public recreation uses under the law.

Besides the normal local budgetary process or federal funding, local governments use a variety of other methods to help fund or obtain urban parks and facilities. They may tie property taxes directly to the park department (Chicago, Kansas City, and Minneapolis); obtain needed land or facilities through donations, park impact fees, legal settlements, tax-defaults, federal or state land surplusing, or an intergovernmental transfer; propose general obligation bond referenda for new parks, facilities, or open space; utilize tax increment financing (TIF), special assessment or other urban revenue raising techniques more commonly used for economic development improvements; acquire conservation easements; or enter into public-private partnerships. Additionally, a local government may establish a separate enterprise fund to raise needed capital and operating revenues (and make self-sustaining) a particular type of recreational activity or park that has user or entrance fees (e.g. public golf course, municipal zoo).

NRPA Standards

Traditionally, the nationally used guidelines for park and recreation facilities have been those recommended by the National Recreation and Park Association (NRPA) in such publications as Park, Recreation, Open Space and Greenway Guidelines. These NRPA guidelines have historically been based on suggested criteria, including minimum per capita standards of "x" number of acres of parkland (or "x" number of facilities) per 1,000 persons, such as the recreation standards shown in the slide. Today, the well-established NRPA standards are generally viewed as the starting point for a local assessment of park, open space and recreational facility needs, with the intention that they will be changed and customized to fit local conditions and each community’s unique, locally-established needs.

The management of parks, open space and recreational facilities face continuing challenges, depending on their type, location, size and operational control. One of the most reoccurring management issues is that of adequate funding, for continuing operations and routine maintenance, as well as capital funding for future renovations and expansions. This is often a particular problem for small municipal recreational facilities and parks, but remains a problem even for the country’s highest profile national parks like Yellowstone, often dependent on budgetary politics (e.g. 2013 sequester cutbacks).
Parks & recreational facilities also have a variety of access and security control issues that may differ greatly, depending on the type of park or facility involved. For example, a state park with lodging at a historic lodge may face access issues for the disabled, whereas a newer municipal major league or pro football stadium may have significant concerns about adequate security and medical treatment provision. Planners involved with a greenway may need to address how to address potential multi-user conflicts such as having mountain bike riders and hikers using the same trails.

For resource-based parks, protection of the natural resources is often the key planning consideration, whether to minimize human overuse and adverse impacts, ensure continued species diversity, combat exotic species introductions, coordinate with adjacent land owners on compatible adjacent land uses, control water pollution, or even air quality (e.g. Grand Canyon: Prevention of Significant Deterioration).
SECTION 3 – PRINCIPLES & APPLICATIONS OF SUSTAINABLE DEVELOPMENT

History

Sustainability as a concept arose out of the U.S. environmental movement of the 1960’s, but the term “Sustainable Development” is most commonly associated with the discussion of the term during the 1972 United Nations’ Conference on the Human Environment in Stockholm, Sweden, and the term’s definition by the 1987 UN's World Commission on Environment and Development (i.e. the Brundtland Commission) report entitled Our Common Future. It was the Brundtland Commission’s report that established the famous definition that: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The subsequent United Nations Conference on Environment and Development ending with the 1992 Rio de Janeiro Earth Summit published a two year effort of concerns & recommendations about the global environment entitled An Agenda for the 21st Century (a.k.a. Agenda 21), which sought to educate people about the environment and development, and recommend ways to make decisions that lead to sustainability. In the U.S., the Clinton administration established a President's Council on Sustainable Development in 1993 to help create U.S. policies on economic growth, job creation, and environmental protection, and the Obama administration in 2009 created a “Partnership for Sustainable Communities” between EPA, HUD and DOT to help communities improve access to affordable housing and transportation, while protecting the environment nationwide.

In the intertwining years since the Brundtland Commission’s definition, the concept of “sustainability” has often been expanded to focus on the intersection (and balance) between the “Three E’s” (or “three pillars”) of Environment, Economy, and Equity (although the latter is often depicted as “Society” as in the drawing here). This is also known as the “Triple Bottom Line” of Sustainability, and sometimes an additional ingredient, such as “politics”, is added to form a more complex foursome “Circles of Sustainability” concept (i.e. Ecology, Economics, Culture & Politics, as shown in the next slide). Others add Ethics, still others Esthetics. Today, although particular definitions for the meaning of “sustainability” and “sustainable development” are not always universally accepted, it is often easier to identify activities and practices that are NOT sustainable, and from that identification, derive solutions and develop key principles of sustainability in planning.

APA Policy Guide

The APA Policy Guide on Planning for Sustainability identifies a series of global and community indications of “unsustainability”.

At the global scale, indications of unsustainability include global warming, soil degradation, deforestation, species extinctions, declining fisheries and economic inequity.

At the community level in the U.S., indications of unsustainability include urban sprawl, continued segregation and unequal opportunities, loss of agricultural and open space, depletion and degradation of water resources, loss of wetlands, traffic congestion, air pollution, and disproportionate exposure to environmental hazards (i.e. environmental “injustice”).
Presentation Narrative: Functional Areas of Practice (Lesson 3)

The causes driving such unsustainability are many, but some key factors are overconsumption, population growth, dependence on non-renewal resources, pollution, environmentally and socially destructive development patterns, inequities in resource distribution, and limited public participation in political and economic decision-making.

It is these very causal factors that help derive the solutions and key principles of sustainability.

**Key Principles of Sustainability**

Actively acting sustainably often requires a paradigm shift in thinking and approach. To do this requires an understanding of what it means to act sustainably. Just as with the definition of “sustainability” there are a myriad of “key principles” proposed in the literature on how to do this, often specific to the particular activities being undertaken, whether for the military, the energy industry, U.S. national parks, etc. The six general principles I list here are taken from the APA selected reading list for the AICP exam (i.e. Planning & Urban Design Standards), and its planning orientation on approaching development issues in our communities.

Planners must have “special concern for the long-range consequences of present actions”. Sustainability is about planning for both the current and future generations. To be sustainable, planning must involve long-term, future oriented solutions to current planning challenges, often looking beyond the 10 to 20-year timeframes typically considered in most long-range plans.

Planners need to “preserve the integrity and heritage of both the natural and built environments”. Sustainable planning involves planning within the sustainable limits (or “carrying capacity”) associated with the natural and built environments (i.e. planning that enables both the natural and man-built systems to support the various demands of existing & future land uses).

Planners must “not accept the applicability of a customary solution without first establishing its appropriateness to the situation”. Sustainability is about undertaking planning actions that address the unique natural and geographic environments of a particular area, and not “one size fits all” solutions. Planners need to “pay special attention to the interrelatedness of decisions” and their planning. This means that sustainable solutions involve being “means-oriented” (i.e. focused towards a larger goal such as becoming a sustainable community) and understanding how to holistically arrive at that goal by sustainably planning for the interconnected, individual planning areas to achieve those “means” (e.g. interconnecting transportation, housing, economic development, community health, natural systems). And lastly, planners need to “give people the opportunity to have a meaningful impact on the development of plans and programs that may affect them” and that “participation should be broad enough to include those who lack formal organization or influence”.

**Planning for Sustainable Communities**

APA’s “Sustaining Places Initiative” was announced in 2010 to “examine both how places can be sustained & how places themselves sustain life and civilizations”. Subsequently, several APA presentations and publications, including two Planning Advisory Service (PAS) reports, have focused on how to plan for (and assess) sustainable communities. Some of the general characteristics of plans that one would expect to find in sustainable communities are listed on the slide, taken from PAS report 567. Plans to accomplish sustainable communities (even early, experimental attempts like Arcosanti) are built in an ongoing, dynamic process that needs to be based upon inclusive, vigorous citizen and stakeholder
participation; effective conflict resolution; actions based on evolving scientific knowledge and community development issues; and include a continuing evaluation and monitoring program, especially one that utilizes actual metrics of sustainability.

Plans from sustaining places incorporate sustainability principles, and take special care to ensure that the needs of future generations are woven into their goals, and not overlooked in the process of dealing with the needs of current generations.

Planning for sustaining places effectively helps direct private and public development in the coordination and balancing of competing economic, social equity and environmental objectives to result in long-term sustainable communities, even if that sometimes incorporates the inclusion of a particular social or environmental outcome undervalued by the marketplace.

Sustainable plans also foster resilient communities that are better able to anticipate, adapt to, and recover from disasters, whether natural or man-made.

Planning for sustaining places acknowledges and addresses the synergy between local actions and larger issues involving regional, national, and global economies, social equity and the environment.

**Examples: Sustainable Actions**

As I previously pointed out, acting sustainably often requires a paradigm shift in thinking and approach. What is also important to recognize is that the sustainability “approach” is an integrated doctrine to other disciplines that cross-cuts, and interconnects with, all other areas of planning and human actions. So we’ll now briefly mention a few quick examples of planning actions that are associated with acting “Sustainably”. A more extensive listing of examples are presented in APA’s Policy Guide on *Planning for Sustainability; Planning and Urban Design Standards; Local Planning: Contemporary Principles and Practices*, APA PAS reports 565 and 567, and other materials associated with this lesson.

Sustainable environmental actions may include the restoration of artificially straightened rivers (like the Kissimmee River in the photo); the recreation of wetland areas along rivers for natural flood control and water quality treatment; landscaping streets; constructing parking areas of permeable materials; the construction of green roofs; planting native plants that do not need artificial irrigation (i.e. xeriscaping); recycling; housing reuse; energy and water conservation; or greenhouse gas reductions.

Sustainable land use planning and policies may promote compact development that minimizes the need to drive; development oriented around public transit; smart growth that guides development to developed areas with existing infrastructure and minimizes development in outlying, undeveloped areas; provide incentives for the remediation and redevelopment of brownfield sites; promote walkable communities; or plan resilient communities that can minimize future impacts from climate change.

Sustainable economic development policies may promote local food production and agriculture that reduces the need for the long-range transport of food; provide economic subsidies only to businesses and industries that make a long term commitment to a community; encourage small, locally-owned and eco-friendly businesses; encourage businesses that reduce the use of, or recycle, toxic metals and minerals, water or energy; or promote financial and social equity in the workplace.
Sustainable social justice actions may include ensuring affordable housing availability; fair and equitable policies maintaining diversity in local populations and economies; eliminating disproportionate environmental burdens & pollution on historically minority communities (aka “Environmental Justice”); or providing affordable, efficient transportation alternatives for everyone.

Assessing Sustainability

APA PAS Report 565, *Assessing Sustainability: A Guide for Local Governments*, summarizes a series of methods to define and assess sustainability in terms that apply to planning. However, each has its own supporters and critics. Two of the newer, but widely known methods that attempt to assess different aspects of sustainability are the LEED for Neighborhood Development (LEED-ND) designation and the ICLEI Star Community index (STAR).

LEED-ND is a rating system that integrates the principles of smart growth, urbanism and green building into a system for neighborhood design. The U.S. Green Building Council, building upon its success with its well-known “Leadership in Energy and Environmental Design” (LEED) Green Building Rating System, created the site-scale LEED for Neighborhood Development (LEED-ND) rating system in cooperation with the Congress for New Urbanism and the Natural Resources Defense Council. The LEED-ND rating system includes five general categories generally associated with sustainability:

1. **Smart location and linkage**, which includes factors related to sensitive environmental areas, suitable development locations, and alternatives to single-occupancy cars.
2. **Neighborhood pattern and design**, which focuses on factors such as walkable neighborhoods; mixed use; access to transit; access to parks and schools; and other neighborhood features.
3. **Green infrastructure and buildings**, which focuses on the traditional green-building and green-site principles emphasized in other LEED certification programs.
4. **Innovation and design process**, which provides bonus credits for innovations & other measures.
5. **Regional priority** criteria provide for a few credits based on local priorities and local environmental issues.

The International Council for Local Environmental Initiatives (ICLEI) Star Community Index (STAR) is a newly developed sustainability and certification rating system and management tool that was created in partnership with the U.S. Green Building Council, the Center for American Progress, and the National League of Cities. The index includes 81 goals and 10 guiding principles used to define and evaluate community-scale sustainability across eight specific categories within the three overarching topics of environment, economy, and society (see slide).

More details about both rating programs are found in the APA PAS report 565 previously mentioned.

Sustainable Plan Example

One of the more perplexing planning issues to address through sustainable actions is that of climate change. It is an example of a “wicked problem”, as it resists easy definitions and solutions, its solutions are socially complex, often divisive, and planning actions intended to address it may have unintended consequences. One exemplary planning effort that focuses on both Sustainable Communities and climate change is the Marin Countywide Plan, which is discussed in more detail in PAS report 567: *Sustaining Places: the role of the Comprehensive Plan*. 
Developed in 2007, the Marin Countywide Plan interweaves sustainability principles throughout all the goals and policies of the entire plan, rather than in a separate sustainability “element”, and includes a list of 70 indicators and targets for measuring progress towards the reduction of greenhouse gas emissions and more environmentally friendly development.

The basic Marin Countywide Plan framework for sustainability is built upon its base of natural systems, above which is layered the community’s agriculture, built environment, socioeconomic capital, and community well-being (see Figure 4.2 from PAS report 567). The plan itself addresses just three main topics: NATURAL SYSTEMS & AGRICULTURE, the BUILT ENVIRONMENT, and a SOCIOECONOMIC element, and was developed over seven years through four citizen working groups and 115 public meetings attended by over 2,000 people. The plan has been praised for its effective addressing of many innovative sustainability issues, such as farm and food access planning, as well as climate change and local programs to plan for, and adapt to, projected sea level rise.

Additional materials on sustainability are provided with this lesson, and make sure to learn more about social equity and environmental justice in the Public Participation module.
SECTION 4 – ENERGY POLICY

Energy Consumption

The U.S. accounts for around 20% of the world’s total global energy consumption, its energy use has been steadily increasing over the last few decades and is projected to continue that trend into the future (see the slide). However, for the first time in nearly 100 hundreds years, the U.S. is no longer the largest energy user in the world – that honor now belongs to China. In 2000, China was using less than 50% of the U.S. energy demands, but equaled the U.S. use in 2010, and by 2040, China’s energy use is projected to be more than double the U.S. use. Similar energy growth trends are occurring in other major developing countries like India and Brazil, and that trend is of concern both for the future costs of non-renewable energy sources, and the impact of such use on global climate change.

The Energy Policy and Conservation Act of 1975 was a response to the 1973 Arab Oil embargo that made gasoline scarce and prices soar. The Act provided for the creation of a Strategic Petroleum Reserve and improved energy efficiency of major appliances, other consumer products, and motor vehicles [i.e. by imposing the CAFÉ (Corporate Average Fuel Economy) standards for new vehicles that basically penalizes a manufacturer if the average fuel economy of its annual fleet falls below the defined standard]. Since that time, national energy policy has often been dominated by crisis-to-crisis policy making and politically highly divided future directions. APA, in its Energy Policy Guide, supports the adoption of a long-term sustainable national energy policy that addresses the decreasing availability of petroleum, energy self-sufficiency, economic competiveness, greenhouse gas emissions, environmental protection, and social equity, while recognizing the impact that energy efficient land use patterns, building design, and transportation modalities have on the demand for energy.

Such a national policy will be critical as the U.S. faces increasing production and energy associated issues such as the emerging scientific consensus on the role of greenhouse gases and major man-made impacts on climate change (the latter “extremely likely”), concerns about hydrofracking’s aquifer use and contamination; ocean acidification; and the dangers from tar sand derived bitumen pipeline spills (e.g. Kalamazoo River; Mayflower, Arkansas). At the local level, energy and climate change issues are connected with other planning areas that planners deal with on a regular basis—transportation, utilities and infrastructure, housing, economic development, & land use, and planners possess many planning tools, such as Smart Growth & energy conservation, to help address these issues in their planning.

Energy Conservation – Fuels, Homes & Lighting

Energy conservation and efficiency are generally the most cost-effective means of “producing” more energy and typically pay for themselves over time. Japan and Germany have about half the per capita energy use of the U.S. Much of this is associated with their much lower per capita oil use. Increasingly, the U.S. is placing emphasis (and incentives) on the production of more fuel-efficient cars (lighter, greater mpg) or transportation fuels producing fewer greenhouse gases (e.g. blended fuels like ethanol & gasoline; hybrids, hydrogen or electric cars). Of course, besides driving a more fuel efficient car, offering incentives for the increased use of carpooling and mass transit, allowing telecommuting, or planning housing near workplaces so that work access is walkable, or via bicycles, are all means to reduce the Vehicle Miles Traveled (VMT) and help in overall energy conservation and the reduction in greenhouse gas emissions.
Energy and green building standards are increasingly common, with ENERGY STAR and LEED standards being the best established. There are many factors that affect a building’s energy efficiency. A building’s basic wall and ceiling insulation (as measured by its R-Value - the bigger the better; e.g. R-38); its sun orientation; its surrounding and roof vegetation; the color of its roof; the energy efficiency and heat blocking capacity of its windows; and the manner of its heating and cooling all play a role in its overall energy efficiency. If a building produces its own energy, it may even become a “NET-ZERO BUILDING”, or use only as much power as it generates by itself. Currently, the federal government is the national leader in the construction of large net-zero buildings, such as its 50,000 sf NASA Sustainability Base at the Ames Research Center, and the 220,000 sf Research Support Facility at the National Renewable Energy Laboratory, the largest net-zero building in the country.

For houses, a home energy audit will help identify how much energy a home consumes and what measures may be taken to make the home more energy efficient. According to the Dept. of Energy, the largest energy user in a home is space heating (45%), followed by water heating (18%), with increased insulation (higher R-value) and leak prevention providing the greatest energy conservation gains. Appliances and other products carrying the Energy Star service mark generally use 20–30% less energy than required by federal standards, although some appliances like dishwashers require a 41% energy savings to qualify for the designation. Newer generation LED lighting is generally twice as energy efficient as Compact fluorescents (CFLs), and five to ten times more efficient than incandescent lighting, while producing much less waste heat, and lasting up to 40 times longer.

Energy Conservation – District Heating & Cogeneration

Some energy efficiency strategies involve more than one building or structure. Two related examples are DISTRICT HEATING (& cooling) and COGENERATION.

DISTRICT HEATING is a system for distributing heat generated in a more efficient centralized location to residential and commercial establishments for space heating, water heating and cooling, and is used on many college campuses such as Notre Dame and the Michigan State University. The heat is typically distributed through pipe networks that carry the heat in the form of hot water, steam or special high-thermal-capacity fluids. The distribution may involve a few buildings or even an entire neighborhood or industrial complex, usually at 10% to 30% energy savings over individual systems. Additionally, the centralized facility may be using renewable energy sources or cogeneration.

COGENERATION (also known as CHP – Combined Heat & Power) is the process that captures and uses the heat generated during the production of electricity. In fossil fuel power plants, up to two-thirds of the energy used to create electricity is lost in the conversion process. Cogeneration reclaims part of this lost energy by using the "waste" heat to provide heating to the same facility or to other buildings through District Heating. This can increase the energy efficiency of the power generation by up to 90 percent, and is best suited for facilities that are located close to the cogeneration source. Cogeneration is used with a wide variety of power plant types, including nuclear and industrial biogasse energy production (e.g. sugar cane waste converted into power).

The International Energy Agency has recommended an increase in the use of cogeneration, noting that cogeneration “is an integrative technology that can make significant contributions to reducing emissions of carbon dioxide and air pollution and to increasing energy security.” Some studies indicate that cogeneration combined with district heating may be one of least expensive means of cutting excess carbon emissions. Denmark is currently one of the world leaders in cogeneration, obtaining nearly half its
total energy from cogeneration and waste heat recovery. In the U.S., cogeneration provides less than 10% of our energy demands.

**Renewable Energy: Solar & Wind**

Unfortunately, nonrenewable energy sources still account for over 90 percent of all U.S. energy consumption, and this is projected to change by only a few percent before 2035 (see the slide that began this lesson), due to factors related to the current difficulty in storing renewable energy sources, their limitations on being able to substitute for fossil fuels because of their lower “energy density,” and other factors. Yet without major policy shifts towards better conservation, higher efficiency and the improved use of renewable energy, the U.S. will continue to be dependent on increasingly more expensive non-renewable energy sources for many decades. So here, we’ll briefly discuss some pro and cons of each major type of renewable energy source, before describing some planning actions that communities may undertake for improving energy efficiency and resiliency.

**SOLAR** encompasses both “passive” solar (such as rooftop water and space heating, as well as building design and orientation features) & “active” solar, which either directly generates electricity through the use of photovoltaic cells or concentrates solar power using focused mirrors that heat up fluids that drive turbines. Both types of solar work with either new construction or building retrofits in a wide variety of situations, although solar-access rights for residential solar may need to be established in local codes to avoid conflicts among property owners. Solar electrical generation is clean, silent, basically unlimited, but its energy generation is generally somewhat inefficient (~20% photovoltaic energy capture), has expensive installation costs for individuals (unless subsidized or amortized), and is dependent upon the availability of sunlight and associated energy storage, unless allowed to be directly fed back into the power grid. The world’s leader in solar power production is Germany, roughly at the same latitude as Newfoundland, so the U.S. receives plenty of sunlight for effective solar energy production.

**WIND** power typically comes from “small wind” systems, usually individually owned and generating fewer than 100 kilowatts of energy, and “wind farm” scale systems using large turbines that can each generate more than five megawatts (MW) of electricity, with rotating blades over 110 meters in diameter. It is one of the fastest growing renewable energy sources in the U.S., growing from 2,500 MW to 40,000 MW between 2000 and 2010. Wind electrical generation is clean; increasingly competitive with other sources of electricity; and relatively inexpensive to construct and operate; but wind farm scale systems can create low, although constant levels of noise pollution; affect radar; have visual impacts due to their height (200’ - 350’ tall); kill migratory birds and bats (including endangered species), and are dependent on specific locations to obtain the minimum amounts of needed sustained winds.

**Renewable Energy: Geothermal & Bioenergy**

**GEOTHERMAL** energy utilizes the thermal energy stored within the earth. The U.S. produces almost 30% of the world’s geothermal derived electrical energy, although that represents only about 0.3% of the nation’s electrical production. Geothermal energy is relatively clean energy; plant facilities take up the least amount of land area per kW generated of any major power source; as an energy source it is virtually unlimited in potential and, unlike solar and wind, reliable in the constant production of energy, and can be used for either electrical generation or heating; but startup and drilling costs can be expensive; current drilling technology limits potential sites to shallow geothermal heat reserves (at most 2-3 miles deep); drilling can be long-lasting and noisy; and the facilities require close proximity to surface water for pumping and cooling, and may produce noticeable odors from gases such as hydrogen sulfide. Smaller,
Presentation Narrative: Functional Areas of Practice (Lesson 3)

and more common, geothermal heat-exchange systems, also known as ground-source heat pumps, use the relatively stable temperature of the earth (>10 feet down) to reduce energy use for the heating and cooling of buildings and homes. The systems are expensive to install, but usually pay for themselves within 5–10 years and have been installed in tens of thousands of homes, institutions, and businesses in the United States.

BIOENERGY (or biomass energy) produces electricity, heat, or transportation fuels (“biofuels”) from renewable organic sources, such as agricultural crops & residues, wood chips, manure, food processing wastes and biogas (e.g. methane). Bioenergy use can have greenhouse gas reduction benefits, depending on the specific materials and growing methods involved. Bioenergy is abundant, reliable and renewable; can utilize waste products that might otherwise end up in landfills, or biogas such as methane, a potent greenhouse gas, and keep it from otherwise entering the atmosphere; it can be utilized in cogeneration and, when coupled with district heating, is much more environmentally friendly than the use of other fuels like oil and coal; but bioenergy has been criticized for its use of food products such as corn for biofuels rather than as food; requires large quantities of fertilizers and water for the production of some crop-based materials and processing (especially to produce ethanol biofuel); has a low energy density so transporting it any distance to a biofuel plant can be costly and energy inefficient; and because bioenergy often involves incineration, it may still add to air pollution and greenhouse gas production.

Renewable Energy: Hydropower & Nuclear (interim)

HYDROPOWER produces power or electricity from hydroelectric dams and moving water such as ocean tides, oceanic waves, and free-flowing rivers (e.g. < 100 kW micro-hydropower systems). Hydropower is clean, renewable, and reliable; but large dams can be expensive to build and maintain; flood upstream areas not previously subject to flooding; create significant water quality & aquatic habitat impacts that have to be addressed (e.g. migrating salmon, turning lotic into lentic habitats); and alter the local hydrologic cycle, both by changing the timing and amounts of flowing waters, and by increasing the evaporative loss of water, resulting in an increased salinity of the remaining water. Tidal and wave energy systems are highly efficient, clean and reliable; but are expensive, may be location specific, can disrupt fisheries and marine life, and create navigational issues, especially when employed within estuaries.

NUCLEAR POWER is a highly controversial energy source, especially due to issues related to its operational use of highly radioactive materials and associated waste disposal issues. However, nuclear energy offers a powerful, virtually carbon free alternative to fossil fuels for electrical generation, especially during the current interim period while renewable energy technology continues towards large-scale implementation. In the U.S. today, 100 nuclear power plants produce nearly 20% of the nation’s electrical power production. Nuclear energy produces abundant electricity at relatively low costs; is a steady and scalable source of power; produces little air and water pollution (except thermal pollution); but it is not currently a renewable energy source; the mining of uranium in the U.S. has a long history of health and safety issues; plants use huge amounts of water for cooling, and have unique security and safety issues; its long-term nuclear waste disposal is highly difficult to accomplish, controversial, and the safety concerns and costs of disposal can continue for many tens of thousands of years after the plant is no longer operational; the existing U.S. plants are aging and nearing their life expectancy in the next several decades; and although relatively inexpensive to run, nuclear power plants are very expensive to initially build.

Local Planning & Energy
Integrating energy (and associated climate change) issues into local planning can be accomplished using traditional planning tools such as Long-Range Visioning, Plan Making, Regulations, Development Review, Incentives, Public Investments and Public Outreach & Education. One approach is the incorporating of energy and climate change related issues into traditional planning areas, such as the form and pattern of development, infrastructure and utilities, transportation, economic development, building and site design, and natural resources. For example, building and site plan development criteria can be utilized that result in greenhouse reductions through maximizing the reuse of existing buildings (thus saving the energy production that would be expended for new building materials); ensuring the use of energy-efficient practices in construction and renovation of buildings; encouraging the use of more energy-efficient lighting and appliances (through incentives or energy certifications); and promoting "renewable ready" building and site features (such as providing energy efficient transportation choices like bicycle and pedestrian paths, bike racks, and well-designed transit stops).

Additionally, planning efforts may involve the development of a separate, but integrated, Climate Action Plan or an Energy Plan. A CLIMATE ACTION PLAN is typically a plan intended to guide community efforts for reducing greenhouse gas emissions, but may (like the Broward County example on this slide) also address strategies and policies for mitigating and adapting to the consequences of climate change. A Climate Action Plan may focus on issues such as local sea-level rise projections and associated long-term infrastructure planning, water resources/water supply management, outreach & zoning/building codes.

An ENERGY PLAN is typically a community plan that addresses the energy use, efficiency and sources in a community, as well as strategies for ensuring energy security in the future. An Energy Plan may focus on issues such as energy consumption reduction; clean energy generation; greenhouse gas emission reductions; and local job creation in the clean energy sector. To be effective, both Climate Action Plans and Energy Plans need to have their goals, strategies and policies appropriately incorporated into (or ensured of consistency with) local comprehensive plans and zoning & building codes.

The December 2012 Zoning Practice issue lists the “Top Nine Ways to Power Down your Zoning Code”, including more efficient, effective lighting; reusing and reducing water use & movement; combating the heat island effect; maximizing solar access; reusing existing buildings; reducing VMT; preparing for electric vehicles; encouraging energy efficiency; and partnering with utilities.
Emergency Management – 4 Phases

Emergency management consists of planning and actions to avoid and manage the effects from both man-made and natural disasters. It involves federal, state, local and sometimes regional agencies and has four distinct phases: Mitigation, Preparedness, Response and Recovery.

MITIGATION involves planning and actions to prevent or reduce the long-term risks from future hazards to people and property. Examples include planning for development to occur outside of high-risk flood prone areas; designing new public facilities to include safe rooms in tornado prone regions; constructing buildings to resist the effects of earthquakes, or a requirement for the setback or elevation of new or rebuilt development in coastal areas subject to severe coastal erosion or storm wave action.

PREPAREDNESS planning involves preparing plans or actions made to be able to save lives and to respond to future emergencies. This typically involves an ongoing, repetitive cycle of planning, organizing, training, equipping, exercising, evaluating, and undertaking “lessons learned” corrective actions after emergencies in an effort to ensure effective coordination during an emergency. The result of this planning is most often an “emergency operations plan” that specifies the procedures that will be taken (and by whom) in response to an emergency or disaster.

RESPONSE is taking immediate actions to save lives and prevent further property damage during (and immediately following) the actual emergency situation. Response is putting the “emergency operations plan” into action, and acting in reaction to the specific emerging information and events both during, and immediately following, the emergency.

RECOVERY is the long-term planning and actions taken after the emergency, in order to restore government operations and services; coordinate any needed assistance following the event, including the coordination of public assistance, rebuilding, or financial programs to provide housing, if needed; and an analysis of post-disaster “lessons learned” from planning and actions taken for the event.

National Disaster Acts

The Stafford Disaster Relief and Emergency Assistance Act became law in 1988, amending previous Disaster Relief law, and created the system in place today by which a presidential disaster declaration of an emergency triggers financial and physical assistance through the Federal Emergency Management Agency (FEMA).

The Stafford Act was amended by the Disaster Mitigation Act of 2000, which most significantly required state and local governments to prepare and adopt multi-Hazard Mitigation Plans approved by FEMA, in exchange for eligibility to receive hazard mitigation grants from FEMA.
A good local Hazard Mitigation Plan will:

1. Involve an active and ongoing public participation process, including neighboring communities
2. Identify & analyze the consequences of “Natural” Hazards – i.e. a “hazard vulnerability analysis”
   a. note: the plan may also address man-made hazards, but is not required for eligibility
3. Identify the mitigation strategies that are needed to successfully address the analyzed hazards
4. Integrate the Hazard Mitigation planning into other planning efforts, such as “emergency operations plans and comprehensive plans (in FL, addressed in Coastal Management, Conservation, & Public Facilities Elements, plus in Capital Improvements Programs - CIP)
5. Be implemented, monitored and continuously updated and revised as needed

More details can be found in APA’s PAS report 560: *Hazard Mitigation: Integrating Best Practices into Planning* and other materials associated with this lesson.

Unlike Hazard Mitigation Plans, post-disaster recovery plans are NOT currently guided by federal law, and only one state (Florida) appears to have a requirement for local comprehensive plans to include plans for post-storm recovery. However, the recovery from disasters such as a Hurricane Katrina or Sandy may take many years and that in itself highlights the need for effective post-disaster recovery planning. Such planning may involve topics addressing housing repair, reconstruction and moratoriums; business resumption and economic redevelopment; infrastructure restoration and mitigation; long-term health and social services support; citizen and stakeholder involvement; environmental restoration; funding sources and financing options; and the post-disaster responsibilities of local agencies.

**Types of Hazards**

Natural hazards come in all sizes and types, although some may be more regionally specific in impact (e.g. ice storms, sinkholes, earthquakes, and volcanoes). Just to mention a few natural hazards and the types of mitigation efforts associated with them:

- **EARTHQUAKES** – Mitigation efforts may include requiring earthquake-resistant design building codes to minimize risks, or relocating or fortifying high risk facilities and infrastructure.
- **FLOODS** – Mitigation efforts may include the elevation of structures in flood-prone areas, their relocation, or even a reconstruction prohibition for the most repetitively flooded facilities and infrastructure.
- **HURRICANES** – Mitigation efforts may include required evacuations prior to landfall, code requirements for hurricane shutters or wind resistant windows, or new coastal building setbacks from wave surge areas.
- **LANDSLIDES** – Mitigation efforts may include requirements for geological surveys assessing the landslide potential of a particular site prior to development; clustering of development on the safest slope areas, or reductions of density for at risk sites.
- **WILDFIRES** – Mitigation efforts may include requirements for wet season controlled burns; codes mandating the use of fire-resistant building materials; the planting of fire-resistant plants or planning for vegetation free (or reduced fuel) buffer areas around structures.

Some man-made hazards are more difficult to anticipate through planning, as they often depend upon low probability chance events for a particular location (e.g. rail car toxic chemical spill), or involve man-made hazards that have not occurred regularly previously (e.g. radiation fallout from a nuclear attack on the
U.S.). However, many of these man-made hazards can be similar in nature (e.g. explosions, chemical spills, biological, radiological, terrorism) and have some similarity of mitigation strategies within each grouping. For example, industries and transport facilities that deal with hazardous materials might develop Hazardous Material Management Plans to address the handling, potential for accidental spills, and the general security of hazardous materials. Community concerns about crime may evolve into involvement with Community Crime Prevention through Environmental Design (CPTED) design techniques that can include neighborhood access management, the elimination of hiding places, the strategic placement of new buildings, or the provision of accessible transit systems.

**Floodplains**

A floodplain is the land adjacent to a stream or river that experiences occasional flooding. FEMA, for the purposes of the federal flood insurance program defines the 100-year floodplain as “the area that will be inundated by a flood event having a 1-percent chance of being equaled (or exceeded) in any given year”. The elevation of such a flood at any particular location is known as the “Base Flood Elevation” (BFE). Riverine floodplains are comprised of the floodway and the flood fringe. The 100-year floodway includes the main river channel and adjacent areas that “convey” (i.e. move) floodwaters during a 100-year event. The flood fringe is land outside the floodway which stores (but does not convey) flood waters during a 100-year flood event. Floodplain management regulations restrict development or encroachment within this floodway in order to prevent interference with the ability of the floodway to discharge floodwaters during a 100-year storm event, resulting in the raising of the base flood elevation.

Participation in the National Flood Insurance Program (NFIP) makes flood insurance available to homes and businesses in exchange for local communities adopting and enforcing floodplain management ordinances that reduce future flood risks from new construction in “Special Flood Hazard Areas”. The National Flood Insurance Program (NFIP) and local government floodplain management regulations use the 100-year flood occurrence criteria as the basis for the regulatory and flood insurance program. Such areas are mapped on Flood Insurance Rate Maps (FIRM) as 100-year Special Flood Hazard Areas (i.e. A-zones), in addition to mapping areas that are outside of flood prone risk areas except from a 500-year flood (i.e. C-zones), or those that are mostly coastal areas at special risk from wind driven waves (i.e. V-zones, or velocity zones). The National Flood Insurance Program and local floodplain management programs require new and improved residential structures to be elevated at least one foot above the Base Flood Elevation, and require non-residential structures to be likewise elevated, or floodproofed.

More details about FIRM designations can be found on the FEMA website and in additional materials that are part of this section.
BROWNFIELD REDEVELOPMENT

The U.S. Environmental Protection Agency defines a brownfield as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Brownfields can range in size from a single lot to a multiacre site and are found in urban, suburban, and rural communities. Examples include defunct manufacturing plants and textile mills, auto salvage yards, and abandoned dry cleaners and gas stations.

IMPACTS OF BROWNFIELDS

Brownfields can impact a community’s quality of life in various ways. They can reduce the tax base and lower neighboring property values. They diminish the aesthetics of a community, discouraging investment and promoting blight, vandalism, and crime. Contaminated sites can also threaten public health and the environment through polluted soil and impacts to water quality.

Additionally, real or perceived contamination deters developers who may otherwise be willing to put the sites back into use. Instead they develop greenfields, undeveloped areas including farmland, forests, and open spaces. These sites lack infrastructure and multimodal transportation options, increasing costs to the consumer and local governments in the form of increased vehicle-miles traveled (VMT) and infrastructure costs.

CHALLENGES AND BARRIERS TO BROWNFIELDS REDEVELOPMENT

Redeveloping brownfield sites can be challenging. The sites are subject to various federal, state, local, and tribal laws and institutional restrictions that can complicate the development process and increase the time and expenses needed to complete the project. These laws and restrictions can vary greatly from place to place. Additionally, because all brownfield sites are different, a detailed site assessment is required to determine the true scope of a project. Although public funding may be available for cleanup, regulatory program guidelines can be confusing and add time to the redevelopment process.

Often, the biggest challenge to brownfield redevelopment is overcoming misconceptions. Fear of costs, complications, delay, or liability associated with pollution can invoke fear in residents, discourage private-sector investors from buying the sites, block local governments from project involvement, and raise concerns among lenders and financiers.

OPPORTUNITIES AND BENEFITS OF BROWNFIELD REDEVELOPMENT

Instead of being viewed solely as liabilities, brownfields should be thought of as opportunities for revitalization and transformation. Brownfields have locational advantages, as they are typically found near city centers and well-established transportation corridors. They often have infrastructure in place enabling them to take advantage of demand for new housing and employment opportunities.

Additionally, cleaning and reusing brownfield sites provides many environmental, economic, and community benefits. Environmental benefits include reducing threats to public health by cleaning up contaminated groundwater or illegal dumping. By providing an alternative to greenfield development, brownfields contribute to air quality improvements from reduction in VMT and protection of valuable open space through the curbing of sprawl.

Economic benefits include an increased tax base and reduced infrastructure and service provision costs for local governments. Additionally, residents benefit from new job opportunities, increased property values, and improved investment in the community.
Community benefits include eliminating eyesores, reducing blight and threats to public safety, and improving community morale. Also, because brownfields are often disproportionately located in poor, predominantly minority communities, redevelopment addresses social justice issues by bringing hope, investment, and vitality to these communities.

BROWNFIELD REDEVELOPMENT PROCESS

The most effective way to clear up misconceptions and help developers, local officials, and residents overcome the barriers and understand the benefits of brownfield redevelopment is to help them gain a better understanding of the redevelopment process. This includes an understanding of pertinent laws and regulations, available funding mechanisms, and where to go for technical assistance.

Although there are many factors that influence the redevelopment process of a site, a basic community redevelopment process can be summarized in six steps:

- Use a collaborative planning process to develop a community vision for how to clean and redevelop the brownfield sites in your community.
- Gather as much information as you can about vacant properties to identify potential brownfield sites before conducting a detailed investigation. This information can help developers prioritize and match their goals to available redevelopment opportunities and make it easier and quicker to identify potential liabilities and assets of a given site.
- After a site is identified for redevelopment, an environmental site assessment must be conducted to assess the level of contamination at the site.
- If the site is contaminated, then a reuse assessment should be performed to determine reuse options for the site before investing in site cleanup.
- Analyze the legal liability, available financing, and compatibility with the end use of the property to evaluate cleanup options for the site.
- Implement a redevelopment plan that identifies the best reuse and cleanup option given the information identified in the preceding steps.

FUNDING RESOURCES

Federal funding, research, training, and technical assistance for the assessment and cleanup of brownfields are available to local governments through the Small Business Liability Relief and Brownfields Revitalization Act (the “Brownfields Law”). This law, an amendment of the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund, also offers certain relief for small businesses from liability under CERCLA.

In addition to the funds available through the Brownfields Law, there are a number of other public and private funding mechanisms available. Local governments should look for ways to partner with federal and state agencies to leverage available funding. Common sources of funding include revolving funds, trust funds, tax increment financing, tax incentives, and public grant programs.

CONCLUSION

Brownfield redevelopment helps our communities grow smarter by addressing the environmental, economic, and community impacts that can result from vacant, contaminated sites. Although there are both perceived and real challenges to redevelopment, the benefits—to local governments, residents, and developers—can often outweigh those challenges. Gaining a greater knowledge and understanding of the redevelopment process, applicable laws and regulations, and available funding mechanisms and technical assistance can help a community revitalize and transform valuable real estate that would otherwise remain abandoned.
Environmental Justice and Land-Use Planning

Planning board and commission members, and planning directors and their staffs, need to be mindful of the environmental justice implications of everything they do—from the plans they prepare, to the policies they recommend, to the actions they take in approving development projects. Environmental justice (EJ) means the fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EJ communities, which encompass environmentally burdened and marginalized communities that may include people of low income and communities of color, are typically identified as those areas that host a disproportionate impact of environmental hazards leading to, among other things, public health and economic disparities as compared to non-EJ communities.

In 1994 President Clinton issued an Executive Order (E.O. 12898) requiring, among other things, that federal agencies strive to make “achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. …” The U.S. Environmental Protection Agency (EPA) hosts an Office of Environmental Justice that provides information, guidance, and data to federal and state agencies and to local governments to assist in meeting EJ principles and goals. EJ can best be achieved however, when fully incorporated into local land-use planning and decision making.

ENVIRONMENTAL JUSTICE AS A LAND-USE ISSUE
Commenting on the landmark U.S. Supreme Court decision in Euclid v Ambler (1926), Alfred Bettman noted that the decision: “… presents the conflict not as one between the individual and the community, but rather as between different communities, different social groups, or social interests, which is, when profoundly comprehended, true of all police power constitutional issues.” EJ goes to the core of traditional land-use decisions: choosing sites for locally unwanted land uses (LULUs) (geographic equity); the process for deciding where to site these unwanted land uses, including the location and timing of public hearings (procedural equity); and sociological factors, including which groups hold the political power inherent in land-use decisions (social equity). Planners are in a unique position to address EJ concerns and ensure that EJ principles are reflected in the local land-use planning and decision-making processes.

Comprehensive Plans
The process of developing a local comprehensive plan (known as general plans or master plans in some states) provides local governments with the opportunity to consider strategies and policies regarding such issues as land use, housing, economic development, transportation, community facilities and infrastructure, environmental protection, human services, historic preservation, and natural and manmade hazards. Following the lead of California, EJ should be an element of these plans.

PUBLIC PARTICIPATION IN PREPARATION OF THE COMPREHENSIVE PLAN
Planners and local officials should provide traditionally underrepresented populations with a meaningful role in the future development of their neighborhoods and communities through active public participation in the development of comprehensive plans. This requires a proactive approach that may entail public notice and information in more than one language, publication or posting of

“A Planners and local officials should provide traditionally underrepresented populations with a meaningful role in the future development of their neighborhoods and communities through active public participation in the development of comprehensive plans.”
notices in conspicuous locations around the community, and not simply complying with minimum statutory notice requirements.

Zoning to Implement the Comprehensive Plan
When a municipality is ready to implement its plan or vision, typically it does so by enacting a zoning ordinance. Drafters of zoning ordinances must ensure that the laws adequately address EJ principles to eliminate disparate environmental impacts among various communities and neighborhoods. They can do so by prohibiting LULUs in minority and low-income neighborhoods, or by imposing enhanced mitigation requirements. Community representatives can also seek rezoning to achieve EJ goals. They will be most successful if they seek rezoning before specific controversies arise and if they suggest reclassifications that do not drastically decrease the value of the land.

Eliminating Nonconforming Uses
Undesirable uses are zoned out but preexisting uses may continue as nonconforming uses. Municipalities have the ability to eliminate through amortization nonconforming uses that pose health and environmental problems. This can be an effective tool for improving conditions in EJ communities.

Connecting Zoning and Environmental Review
A community impact statement (CIS) provides a mechanism for local representatives and groups to formulate their own statement of what they believe impacts will be if a particular use is approved or allowed to expand. One potential benefit of preparing a CIS is that it can be a stand-alone review, totally separate from an environmental impact review, which may not always be conducted under the “control” of members of the impacted community. If conducting CIS reviews becomes part of local zoning reviews, local officials could be required to take the results of a community group’s CIS into consideration, to hold one or more public hearings on the document, and to use the CIS as a vehicle for negotiating on behalf of residents of the impacted community with the applicant for a new or expanded facility. Requiring that a CIS be prepared and used in local zoning decisions could be important for impacted communities who might not otherwise have access to or influence over local decision makers and the results of other environmental reviews.

Membership on Local Boards and Commissions
In most localities, EJ considerations will be factored into local planning, zoning, and siting decisions only where the impacted communities are represented on the bodies empowered to make these critical decisions. A 1987 survey by the American Planning Association revealed that a majority of planning board members were older white males working in areas such as business, law, engineering, education, and real estate. Because boards lacking in diversity may disregard EJ impacts, either intentionally or unintentionally, planners should encourage appointing entities to consider the composition of the community to ensure fair representation of all people in the jurisdiction.

OTHER OPPORTUNITIES FOR ADVANCING EJ POLICIES
The following is a list of guiding principles that should be considered to advance other EJ policies:

1. Enact conditional use standards that restrict uses that could create EJ concerns.
2. Create overlay zones to cover predominantly minority and low-income neighborhoods.
3. Use performance zoning to limit environmental impacts, rather than just regulating land uses.
4. Place buffer zones between communities and uses with negative environmental impacts.
5. Impose exactions and impact fees on developers to help fund mitigations for minority and low-income communities.
6. Require zoning and planning board members to attend training sessions on EJ.
RECREATION PLANNING - System Planning Model

The system planning approach focuses on creating a comprehensive and interrelated system of parks, recreation, open spaces and pathways. The systems planning approach is defined as the process of assessing the park, recreation, open space needs of a community and translating that information into a framework for meeting the physical, spatial and facility requirements to satisfy those needs. The system plan should be a component of the community comprehensive land use plan, reflect current goals and policies, and be an integral part of the land use guidance system.

*Figure 1.1 - Systems Planning Model* illustrates the key components of the systems approach to planning. A key aspect of this model is its cyclic, dynamic nature, with constant feedback from stakeholders through all major steps.

**System Planning Model**

**Key outcomes of the System Planning Model:**

1) Provides an opportunity to view system components within an overall context.
2) Focuses all activities on providing services that benefit the customer.
3) Allows for needs to be evaluated in a comprehensive and comparative manner.
4) Allows for the allocation of limited resources to their highest and best uses.
5) Allows for incremental and orderly improvements to the park system.

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*Source: Brauer & Associates, Ltd.*
Components of the Systems Planning Model

Step 1: Identify customers. The customer is broadly defined and includes:
Participant user: individuals that use the system in a definable structured manner—e.g.,
participants in youth sports, adult leagues, etc.
Direct user: individuals that use the system in an unstructured manner—e.g., hiking,
picnicking, family outing, sightseeing, etc.
Nonusers: individuals that do not use the system directly and may or may not recognize
the personal, social and environmental benefits that the system brings to the community.
The demographic profile of the community allows an upfront and comprehensive
understanding of the potential customer base.

Step 2: Obtain customer involvement and build relationships.
Once the customers have been identified, the next step is to develop a means for
measuring and monitoring needs, and creating and maintaining a relationship with them
as stakeholders.
Methods might include a combination of focus group workshops with scientifically
drawn samples of users and nonusers, neighborhood meetings and scientific surveys. The
process of community involvement is viewed as vital to a successful planning product.

Step 3: Assess need.
Assessing needs allows an understanding of issues and concerns that are confronting the
community and agency within the context of a planning framework.
Some factors or features that should be examined as part of the assessment of need are:

- Trends report: the purpose of the trends report is to conduct a situational analysis of
recreation in the community by means of environmental scan. This analysis provides
an opportunity to identify strategic issues which result in focus for the remainder of
the project.
- Resource inventory and evaluation: this identifies the location, distribution, size and
significance of parks, open spaces, pathways and related facilities in the community.
- Physical barriers and geographical deficiencies are identified. Proposals to respond to
deficiencies and gaps are mapped.
- Condition assessment of parks, open spaces, pathways and related facilities: an
inventory and systematic assessment is made of physical conditions and qualities of
parks and recreation facilities, using specific performance rating criteria.
- Participation rate and use patterns: this examination starts to bring into focus the
magnitude of demand for land and facilities needed to meet the needs of the
community.
- Planning unit profiles: a planning unit is typically defined according to demographic
profiles and geographic areas. In larger cities, planning units are often used to guide
more specific allocation of resources.
- Relationship to other plans.
- Literature and secondary research.
Step 4: Develop strategic plan.
The strategic plan is the benchmark policy document for the organizations’ service delivery. It is intended to provide a consistent and justifiable continuum of ideas, beliefs, and values which define the mission and vision of the park and recreation system. The strategic plan often includes goals, objectives and policies for the following sub-plans: leadership plan; finance plan; comprehensive park, recreation, and pathway plan; human resources plan; recreation services delivery plan; acquisition plan; maintenance and operation plan; natural resource preservation plan; capital improvement plan; marketing and public relations plan.

Step 5: Develop system planning framework.
Park system planning framework is best described as the parameters and guidelines for establishing a park, open space, and pathway system within a city or town.

Step 6: Develop system plan.
The system plan is the policy document and strategic management tool for rationally organizing and structuring the parks, recreation facilities, open space and pathways for the community.

Step 7: Develop recreation services delivery plan.
Identifies the mix of recreation programs an agency will offer, the customers that will be served, and strategies for providing services.

Step 8: Develop maintenance and operation plan.
Some maintenance and operation practices include developing level service and maintenance standard for each type of facility; updating facilities and equipment inventories; analyzing personal and equipment requirements; developing unit management plans for areas of unique character.

Step 9: Develop implementation plan.
The implementation plan clearly outlines the actions that are required to fulfill goals, policies and objectives of the systems plans.

Step 10: Evaluate overall effectiveness of system plans and service delivery.
Public agencies must allow their customers to routinely evaluate the overall effectiveness of the services they offer.
Level of Service

In the early years of park and recreation profession, a basic standard of 10 acres of park land per 1000 persons distributed throughout a community was proposed as meeting the recreational needs of citizens.

By dawn of the 1980's, several events began to change the way communities approached the planning and development of their park and recreation systems:

The notion of a system began to expand to include a wide range of land, water, historical, and cultural resources which were placed under the stewardship of the park and recreation agency.

Research in leisure studies provided planners with better tools to measure participation rates and patterns, needs and preferences, economic benefits of recreation, etc.

With the advent of growth management legislation and the widespread use of dedications and exactions, parks and recreation were elevated to equal status with other statutory required public infrastructure. The new “rational nexus” test when combined with a valid needs/benefits assessment required park and recreation professionals to justify the amount of park land and facilities to be exacted of financed through impact fees.

The LOS provides a way to accurately calculate the minimum amount of land required to provide all of the required activities and the requisite facilities to support activities by expressing this in the context of acres/population. The LOS is a need driven, facility based and land measured formula.

Steps in calculating the level of service standard:

There are eight steps to calculating the LOS.

1. Determine the Park Classifications for which the LOS will apply.
2. Determine the Recreation Activity menu for each park classification. The Recreation Activity Menu (RAM) is the list of all recreation facilities i.e. tennis courts, tot lots, picnic units, etc.
3. Determine Open Space Size Standards (the minimum acreage needed for facilities supporting the activity menus) for each park classification for which LOS standards will apply.
4. Determine the Present Supply of these recreation activity choices.
5. Determine total Expressed Demand for these recreation activity choices.
6. Determine the Minimum Population Service Requirements for these recreation activity choices.
7. Determine the individual LOS for each park class.
8. Determine the collective LOS for the entire Park and Recreation System.
Recreation facility supply: Recreation supply can be thought of as the inventory of all park land and recreation facilities that provide recreation activity choices. This measure expresses the amount of recreation demand, measured in visits per year, that are provided by a typical unit of supply i.e. tennis court. The bottom line is how many visits per year does each park area and facility accommodate?

Supply Formula: \[ EU \times A = RFS \]

- \( EU \): Expected Use (#Visits/Day/Unit)
- \( A \): Availability (#Days/Year/Unit)
- \( RFS \): Recreation Facility Supply (#Visits Available/Year/Unit)

Recreation facility demand: Recreation facility demand is determined by assessing the number of times someone actually participates in a recreation activity. LOS approach suggests that a household survey be used, to ask about occupants’ use and non use of park and recreation areas and facilities. The bottom line in calculating recreation facility demand is simply how many people participate and how often they participate in each park area and recreation facility.

Demand formula: \[ RFD = \frac{(RP \times P)}{SS} \]

- \( RP \): Recreation participation (#Participants/Year/Unit)
- \( PF \): Participation Frequency (Visits/Year/Unit)
- \( SS \): Sample size (number of occupants living in sampled households)
- \( RFD \): Recreation Facility Demand (#Visits Required/Person/Year/Unit)

Minimum Population Service Requirement: Represents the minimum number of people served per year for each park and facility supply unit, i.e. tennis court.

\[ \frac{RFS}{RFD} = MPSR \]

Level of Service by Park Classification: The sum total of people served by each activity in the park is the total population served by that park classification. The total population served divided by 1,000, divided by the park size standard yields the LOS in acres/1000 people.

Total Park and Recreation System Level of Service: Is the sum of the LOS by park classification by each park classification.
# Classification for Parks, Open Space, and Greenways

<table>
<thead>
<tr>
<th>Classification</th>
<th>General Description</th>
<th>Location Criteria</th>
<th>Size Criteria</th>
<th>Application of LOS</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini-Park</td>
<td>Used to address limited, isolated or unique recreational needs.</td>
<td>Less than a 1/4 mile distance in residential setting.</td>
<td>Between 2500 sq. ft. and one acre in size</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Neighborhood Park</td>
<td>Neighborhood park remains the basic unit of the park system and serves as the recreational and social focus of the neighborhood. Focus is on informal active and passive recreation.</td>
<td>1/4 to 1/2 mile distance and interrupted by non-residential roads and other physical barriers.</td>
<td>5 acres is considered minimum size. 5 to 10 acres is optimal.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>School-Park</td>
<td>Depending on circumstances, combining parks with school sites can fulfill the space requirements for other classes of parks, such as neighborhood, community, sports complex, and special use.</td>
<td>Determined by location of school district property.</td>
<td>Variable—depends on function</td>
<td>Yes — but should not count school only uses.</td>
<td></td>
</tr>
<tr>
<td>Community Park</td>
<td>Serves broader purpose than neighborhood park. Focus is on meeting community-based recreation needs, as well as preserving unique landscapes and open spaces.</td>
<td>Determined by the quality and suitability of the site. Usually serves two or more neighborhoods and 1/2 to 3 mile distance.</td>
<td>As needed to accommodate desired uses. Usually between 30 and 50 acres.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Large Urban Park</td>
<td>Large urban parks serve a broader purpose than community parks and are used when community and neighborhood parks are not adequate to serve the needs of the community. Focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces.</td>
<td>Determined by the quality and suitability of the site. Usually serves the entire community.</td>
<td>As needed to accommodate desired uses. Usually a minimum of 50 acres, with 75 or more acres being optimal.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Natural Resource Areas</td>
<td>Lands set aside for preservation of significant natural resources, remnant landscapes, open space, and visual aesthetics/buffering.</td>
<td>Resource availability and opportunity.</td>
<td>Variable.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Greenways</td>
<td>Effectively tie park system components together to form a continuous park environment.</td>
<td>Resource availability and opportunity.</td>
<td>Variable.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sports Complex</td>
<td>Consolidates heavily programmed athletic fields and associated facilities to larger and fewer sites strategically located throughout the community.</td>
<td>Strategically located community-wide facilities.</td>
<td>Determined by projected demand. Usually a minimum of 25 acres, with 40 to 80 acres being optimal.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Special Use</td>
<td>Covers a broad range of parks and recreation facilities oriented toward single-purpose use.</td>
<td>Variable—dependent on specific use.</td>
<td>Variable.</td>
<td>Depends on type of use.</td>
<td></td>
</tr>
<tr>
<td>Private Park / Recreation Facility</td>
<td>Parks and recreation facilities that are privately owned yet contribute to the public park and recreation system.</td>
<td>Variable—dependent on specific use.</td>
<td>Variable.</td>
<td>Depends on type of use.</td>
<td></td>
</tr>
</tbody>
</table>
The classification system recommended for pathway facilities is completely new. It is intended to encourage communities to plan for light traffic facilities in the same comprehensive fashion that is recommended for parks, open spaces, community land uses, and motorized transportation systems.

**Mini Park:**

*Site selection/guidelines:* Servicing a specific recreation need, ease of access from the surrounding area, and linkage to the community pathway system are key concerns when selecting a site.
Development Parameters / Recreation Activity Menus: Customer input should be the primary determinant of the development program.

**Neighborhood Park:**

*Site selection/guidelines:* Ease of access from the surrounding neighborhood, central location, and linkage to greenways are the key concerns when selecting a site. The site itself should exhibit the physical characteristics appropriate for both active and passive recreational uses. Since one of the primary reasons people go to a park is to experience a pleasant outdoor environment, the site should exhibit some innate aesthetic qualities. “Left over parcels of land that are undesirable for development are generally undesirable for neighborhood parks as well.

Development Parameters / Recreation Activity Menus: Neighborhood input should be used to determine the development program for the park.

**School Park:**

By combining the resources of two public agencies, the School Park classification allows for expanding the recreation, social and educational opportunities available to the community in an efficient and cost effective manner. Establishing a clearly defined joint-use agreement between involved agencies is critical to making school-park relationship work.

**Community Park:**

*Site selection/guidelines:* The site’s natural character should play a very significant role in site selection. Ease of access from throughout the service area, and relationship to other park areas are also key concerns. Depending upon their individual character and use, lakes, ponds, and rivers may be associated with either community parks or natural resources areas. Community Park and Natural Resource Area classifications differ in that the former is generally more developed for recreational use than the latter. Land below the 100 year flood elevation would typically fall within the Natural Resource Area classification.

Development Parameters / Recreation Activity Menus: Neighborhood and community input should be used to determine the development program for the park. Community parks allow for group activities and offer other recreational opportunities (such as plays and concerts) not feasible – nor perhaps desirable - at the neighborhood level.

**Sports Complex:**

*Site selection/guidelines:* Topography (drainage) and soils are of the utmost concern in this case. Locating sport complexes adjacent to other park system components, especially
natural resources areas and greenways, is also desirable to buffer their impact on surrounding land uses.

Development Parameters / Recreation Activity Menus: Projected facility needs based on demographic profiles, age-group population forecasts, and participation rates.

Private Park / Recreation Facility

The private park recreation facility is a new classification that recognizes the contribution of private providers to the community park and recreation system. The characteristics are as follows:

Private parks such as swimming pools, tennis courts, and party houses are generally within a residential area developed for the exclusive use of residents and are maintained through a neighborhood association. Private Recreation Facilities are for profit enterprises, such as health and fitness clubs, golf courses, water parks, amusement parks, and sports facilities.

In either case they can be entirely private or a public-private venture.

Natural Resources Areas / Open Lands

Examples include parcels with steep slopes, drainageways and ravines, surface water management areas, utility easements, wetland/lowlands and shorelines.

Greenways

In many respects, greenways and natural resource areas have much in common. Both preserve natural resources and mediate between larger habitat areas, open space, and corridors for wildlife. The primary distinction between the two is that greenways emphasize use (i.e. park trails) to a greater extent than natural resource areas.

Park Trails, Connector Trails and Bikeways

Important steps:
Preparing a comprehensive park and trail system plan that clearly define the routes.
Acquiring the desired land or establishing trail easements at and early stage of community development.
Establishing appropriate development policies (backed by city ordinance) requiring land developers to incorporate trails into their development plans.
Establishing design standards that define how park trails are to be built (AASHTO & ADA standards).

The bikeway system should be extensive enough to allow for reasonable movement within the city and connection to routes outside the city. Bikeways should be considered along all collector, minor arterial, and (on limited basis) major arterial roads.
Functional Areas of Practice – Suggested Reading List
Lesson 3: Natural Resources and Environmental Quality

Section 1: Natural Resources and the Environment
Planning and Urban Design Standards

- “Air Quality”; pp. 101-102
- “Hydrologic Cycle”; pp. 107-108
- “Watersheds”; pp. 109-110
- “Aquifers”; pp. 111-112
- “Rivers and Streams”; pp. 115-117
- “Floodplains and Riparian Corridors”; pp. 118-121
- “Types of Wetlands”; pp. 125-126
- “Wetlands Mitigation”; pp. 128-129
- “Estuaries, Flats and Marshes”; pp. 133-134
- “Conservation Development”; pp. 453-455
- “Urban Growth Areas”; pp. 606-608
- “Transfer and Purchase of Development Rights”; p. 610
- “Open-Space Preservation Techniques”; pp. 616-617
- Transect-Based Code; pp. 602-603

APA Links

APA Policy Guides

- Endangered Species & Habitat Protection
  http://www.planning.org/policy/guides/adopted/endanger.htm
- Water Resources
  http://www.planning.org/policy/guides/adopted/waterresources.htm
- Wetlands
  http://www.planning.org/policy/guides/adopted/wetlands.htm

Rachel Carson
http://www.planning.org/planning/2012/aug/evergreen.htm

Edwards Aquifer
https://www.planning.org/planning/2006/feb/water.htm

NON-APA Links (Subject to Change)

Wetlands
http://water.epa.gov/type/wetlands/index.cfm

Transect Zoning
http://www.transect.org/transect.html

Section 2: Parks, Open-Space & Recreation

Planning and Urban Design Standards

- “Parks and Open-Space Plans”; pp. 38-40
- “Types of Parks”; pp 366-371
- “Greenways and Trails”; pp. 372-375
- “Conservation Areas”; pp. 376-378
• “Playgrounds”; pp. 379-383
• “Parks, Recreation, and Open-Space Needs Assessment”; pp. 512-513

APA LINKS
APA City Park Forum Briefing Papers
http://www.planning.org/cityparks/briefingpapers/

NON-APA Links (Subject to Change)
Park Planning
http://www.commerce.wa.gov/Documents/GMS-Planning-for-Parks-Recreation-Open-Space.pdf
SCORP (Florida Example)
http://www.dep.state.fl.us/parks/outdoor/scorp.htm

Section 3: Principles & Applications of Sustainable Development

APA PAS Report

APA PAS Quick Notes
• 33 – Integrating Sustainability into the Comprehensive Plan. 2011

APA Zoning Practice
• 2013-7: Putting Sustainable Zoning Into Practice
• 2013-8: Code-Ready Sustainable Planning: Reducing the Gap Between What Plans Say and What Codes Do

Planning and Urban Design Standards
• “Sustainability”; p. 95
• “Green Infrastructure”; pp. 486-487
• Three-E Diagram; p. 100

APA Links
APA Policy Guides
• Climate Change
  http://www.planning.org/policy/guides/adopted/climatechangeexec.htm
• Sustainability
  http://www.planning.org/policy/guides/adopted/sustainability.htm

APA’S Sustaining Places Initiative
http://www.planning.org/sustainingplaces/

Sustainability 3.0
https://www.planning.org/planning/2009/may/sustainability.htm

Sustainable Design Elements

NON-APA Links (Subject to Change)
ICLEI STAR Community Index
http://www.icleiusa.org/sustainability/star-community-index
http://www.starcommunities.org/
Section 4: Energy Policy

APA PAS Report
• 558 – Planning for a New Energy & Climate Future. 2010
• 566 – Planning for Wind Energy. 2011

APA PAS Quick Notes
• QN13 – Climate Change and Energy. 2008

APA Zoning Practice
• 2008-7: Urban Wind Turbines (Renewable Energy)
• 2010-11: Solar Energy and Land-Use Regulations
• 2012-12: Powering Down Zoning Regulations (Energy Efficiency, Heat Island Effect)

Planning and Urban Design Standards
• “Leadership in Energy and Environmental Design – LEED”; pp. 481-483
• “Energy Efficient Development”; pp. 484-485

APA Links
APA Policy Guides
• Energy
  http://www.planning.org/policy-guides/adopted/energy.htm

Fracking
  http://www.planning.org/thenewplanner/2013/win/fracturing.htm
  http://www.planning.org/planning/2012/apr/frackorbust.htm

Net Zero
  http://www.planning.org/planning/2013/apr/netzero.htm
  http://www.planning.org/planning/2012/mar/unclesam.htm

Keystone Pipeline
  http://www.planning.org/planning/2012/aug/pipelinesafety.htm

District Heating

NON-APA Links (Subject to Change)
Climate Action Plan
  http://www.epa.gov/statelocalclimate/local/activities/action-plan.html

Section 5: Hazard Mitigation & Disaster Planning

APA PAS Report
• 560 – Hazard Mitigation: Integrating Best Practices into Planning. 2010

APA PAS Quick Notes
• QN32 – Integrating Hazard Mitigation into the Comprehensive Plan. 2011
• QN46 – Floodplain Management. 2013

APA Zoning Practice
• 2012-4: Promoting Flood Resiliency Through the Regulatory Process
• 2012-5: Limiting Wildfire Risk Through Land-Use Controls
• 2013-11: High and Dry on the Waterfront (Adaptive Design [Flood Resilience; FEMA Flood Zones])

Planning and Urban Design Standards
• “Hazard Mitigation Plans”; pp. 43-45
• “Flood Hazards”; pp. 148-150
• “Hurricanes and Coastal Storms”; pp. 154-155
• “Wildfires”; pp. 164-165
• “Hazardous Materials”; pp. 168-169
• “Federal Disaster Law”; pp. 584-585

APA Links
APA Policy Guides
• Hazard Mitigation
  http://www.planning.org/policy/guides/
APA Hazards Planning Research Center (Multiple Links)
  http://www.planning.org/nationalcenters/hazards/
FEMA Floodplain Maps

NON-APA Links (Subject to Change)
FEMA Flood Zones
  https://msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%2520Flood%2520Zone%2520Designations