

2.2 Land Use and Built Environment Chapter

Objectives:

1. To encourage compact, mixed-use, multi-modal development that will increase travel options within existing urbanized areas, employment centers, and along transit nodes and corridors as a means to accommodate new population growth, reduce land consumption, preserve valuable open space, conserve ecosystem functions, protect water quality, and improve community health.
2. To promote County and municipal policies and regulations that facilitate the application of the Livability Principles, Smart Growth Principles, and Healthy Community Design criteria as an alternative to conventional suburban sprawl.
3. To promote reinvestment in underutilized vacant properties, opportunities for compact, mixed-use development, and possibilities for suburban retrofits as preferred alternatives to new development that consumes more farmland and open space.
4. To support a countywide open space and green infrastructure network by prioritizing its protection, restoration, and enhancement through careful evaluation of natural resources prior to new development and utilizing techniques such as conservation design and low impact development.
5. To support transit-supportive land uses and complete streets along and connecting to the Randall/Orchard Road Bus Rapid Transit (BRT) Corridor and the IL Route 47 Corridor as part of the transportation system that makes up the built environment.
6. To promote complete, walkable neighborhoods that provides proximity to daily goods and services in order to decrease automobile dependence, and enhance livability and build community cohesion.
7. To capitalize on existing investments in infrastructure by encouraging development in areas in where infrastructure is being underutilized or planned for expansion without straining fiscal budgets or creating new environmental impacts.
8. To develop land use and built environment policies in coordination with transportation improvements and community health strategies.

Chapter Focus

The way a community is planned and developed – its land use patterns, transportation options, and community design- strongly influences the health of those living there. Land use and the built environment is a new planning issue in the 2040 Plan that provides policy direction for creating healthier communities supportive of active living and healthy eating. In planning for the new growth expected in the next 30 years, Kane County promotes compact mixed, multi-modal development in targeted areas that will increase travel options, such a transit, biking, and walking, allowing residents to lead more active, healthy lifestyles. Additionally, by focusing growth in strategically planned areas, land use consumption is reduced hereby preserving opportunities for expansion of the countywide green infrastructure network and increasing opportunities for protecting farmland and local food production. Kane County promotes accommodating new growth through infill and redevelopment in established communities that have readily available public infrastructure; retrofitting underutilized property and property with conventional auto-oriented land use patterns; and planning for opportunities to link transit, land use, and housing at nodes along transportation corridors. The County’s policy is to promote collaborative planning in partnership with the municipalities on future transportation corridors, such as Randall Road and IL Route 47, to improve energy efficiency, air quality, and mobility choices for healthier residents. Kane County endorses the use of nationally recognized growth management and design principles that include, Smart Growth Principles, Livability Principles, and Healthy Community Design Principles as tools to support municipal and County land use and development decisions.

This Chapter examines:

Introduction to the Built Environment

A Healthy Built Environment for Kane County

Sprawl Retrofit

Priorities for Accommodating Growth in the Three Strategy Areas

Community Design, Physical Activity, and Health

Introduction to the Built Environment

Today, most Americans don’t get enough physical activity and do not meet the health recommendations set by public health agencies. There is an epidemic of obesity nationwide and Kane County is contributing to this epidemic – over 64% of the national population¹ and 64% of the County’s population is obese or overweight!² “Widespread inactivity is a major determinant of poor health in the general population in terms of premature mortality, the onset of chronic diseases, and poor quality of life.” Beginning in the 1980’s and continuing today, research reveals that moderate forms of physical activity could provide short- and long-term health benefits, contributing to a reduction in the risk of premature mortality, chronic disease, and a host of other preventable illnesses. Because moderate physical activity is lower in intensity, it is easier for a person who is sedentary or has disabilities to integrate into their daily living habits, and

¹ Behavioral Risk Factor Surveillance System. 2010. <http://www.cdc.gov/brfss/index.htm>.

² Kane County Community Health Survey, 2011, Kane County Health Department.

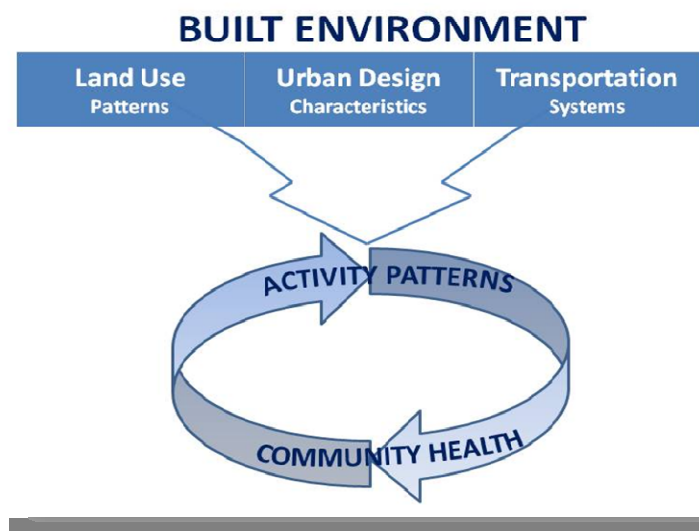
may be more attractive to those that don't have time to dedicate to the gym or outdoor recreation. Purposefully changing the way communities are designed and built allows residents to incorporate moderate physical activity into their daily lives, as a matter of course or as incidental to doing other things.^{3a}

The built environment is critical to shaping communities that promote health, improve our quality of life, and are offer more sustainable choices for future generations. Dr. Richard Jackson, author or *Designing Healthy Communities*, delivered this key message to Kane County at the 2010 annual Healthy Communities workshop:

“The built environment is not a community; it is the hardware to go with the software of the community. The way we build our neighborhoods can make it easier or harder to feel the sense of community within a geographic area by encouraging interaction or hindering it. This interactive engagement between people, nature, and the built environment creates the health of a community. There is not ‘ultimate’ healthy community as all communities can be improved upon. Instead all built environments lie along a continuum of supporting healthy choices.”

More specifically, the built environment typically constitutes a city, village, or suburb and refers to aspects of our surroundings which are human-made or modified, including infrastructure designed to support our activities - buildings, roads, trails, parking lots, and recreational parks, as compared with the natural environment.^{3,4,5} At the macro level, the general pattern of development is determined by density, land use distribution (residential, commercial, industrial, etc.), amount and location of open space and conservation areas, transport infrastructure and development corridors. At the local level, the human scale is considered, including nature and scale of buildings, mix of buildings (purpose, type, etc), how pedestrians are accommodated, parks and open space and the transport network. Figure 14

Figure 14



Source: (Frank, Lawrence et al., 2003)

illustrates the relationships between physical activity, health, and the built environment. **Land use patterns, urban design characteristics, and transportation systems are**

³ Frank, Lawrence D., Engelke, Peter O., and Thomas L. Schmid. 2003. *Health and Community Design: The Impact of the Built Environment on Physical Activity*. Washington D.C.:Island Press.

⁴ Papas, Mia A., Alberg, Anthony J., Ewing Reid, Helzlouer, Kathy J., Gary, Tiffany L., and Ann C. Klase. The Built Environment and Obesity. *Epidemiologic Reviews*. 2007; 29:129-143.

⁵ Robert Wood Johnson Foundation and University of Wisconsin Population Health Institute, County Health Rankings. (www.countyhealthrankings.org/health-factors/built-environment) Accessed 11/2011.

the basic elements that make up the built environment. All of these elements impact the activity patterns of those that live, work, and play in these environments, either promoting or not promoting individual or community health. Kane County is making a commitment to promote a healthy built environment in order to have the healthiest residents in Illinois.

A Healthy Built Environment for Kane County

Kane County supports a built environment that is carefully planned, promotes healthy choices, improves our quality of life, and enhances and preserves our natural resources. With careful planning, we can continue to improve our quality of life, thereby making our County a better place to live, by addressing factors that focus on “**Livability – what attracts people to a particular community.**” In order to achieve this, the comprehensive plan for the Chicago Region, GO TO 2040, recommends that communities “*seek to direct investment toward strengthening existing communities and finding opportunities to encourage new development and redevelopment in livable communities that are denser and designed for mixed uses*”, in addition to reducing land consumption, expanding and improving parks and open space, and promoting sustainable local food.⁶ Kane County supports livable communities as promoted by the GO TO 2040 Plan.

In 2010, Kane County endorsed the six Livability Principles first introduced by the Partnership for Sustainable Communities as a guide for the new federal agency partnership, including HUD, DOT, and EPA. Kane County also supports a seventh livability principle proposed by a region-wide joint initiative of MPC, CNT, CMAP and RTA to advance the livability principles⁷. The seventh livability principle, conserve natural resources, “should protect air, water, open space, and other natural resources by investing in existing communities, green infrastructure, conservation, and efficiency strategies.”

The seven ***livability principles*** Kane County supports are:

1. Provide more transportation choices
2. Promote equitable, affordable housing
3. Enhance economic competitiveness
4. Support existing communities
5. Coordinate and leverage federal policies and investment
6. Value communities and neighborhoods
7. Conserve natural resources⁸

Long-term planning for growth and development should be coordinated with regional and local partners, especially municipalities who will make decisions on 90% of the County’s land area, to guide community investments toward the seven Livability

⁶ Chicago Metropolitan Agency for Planning. 2010. GO TO 2040 Plan.

⁷ A Joint Initiative of CNT, CMAP, MPC. And RTA. Advancing Livability Principles: Federal Investment Reform Lessons from the Chicagoland Experience. Federal Investment Reform Recommendation Report. Fall 2009.

⁸ HUD-DOT-EPA. Partnership for Sustainable Communities. <http://www.sustainablecommunities.gov/>

Principles. Implementation tools such as the proposed Kane County Planning Cooperative can help guide local decision making, foster collaboration, and initiate a process for tracking our progress. In order to best facilitate effective decision making and to measure the region's progress in implementing the GO TO 2040 Comprehensive Plan, CMAP tracks a number of regional indicators through MetroPulse, a customizable website that provides extensive data about issues that shape the livability of our communities. For example, one of the indicators that MetroPulse tracks is the *Number of Jobs Located Near Affordable Housing*. This indicator tracks the number of jobs within a 30-minute door-to-door travel time of block groups, with at least 50% of all housing stock considered affordable by Illinois Housing Development Authority definition. It is important to track the spatial mismatch between affordable housing and jobs because residents of these units are more likely to spend a greater percentage of household income on the combined cost of housing and transportation to work.⁹

In addition to the seven livability principles, Kane County also reinforces the Smart Growth principles adopted by the Kane County Board in the Kane County 2030 Plan as a growth management strategy (Figure 16). Smart Growth, or principles for guiding growth that result in more **compact, mixed, and multi-modal development**, "is an approach to development and urban design that encourages travel efficiency and improves accessibility while also providing more housing and travel options." Promotion of the Smart Growth principles began nationally in 2002. Application of the smart growth principles in communities around the nation has allowed time to gather evidence showing that pursuing smart growth principles can bring economic and quality of life benefits to families, businesses, and their communities in the following ways:

- **Returns on Investment**, such as increased property values and rents, job creation, higher tax revenues, attracting other investment to the area, and so on.
- **Savings on Expenditures** for households and local government, including reduced costs for transportation time and fuels, infrastructure construction and maintenance, health care, water, police and fire services, etc.
- **Quality of Life Improvement** – non-monetary benefits that raise the standard of living - including access to a diversity of restaurants and shops, parks and open space, street trees, lively public spaces, sidewalks, bike paths, and public transportation.¹⁰

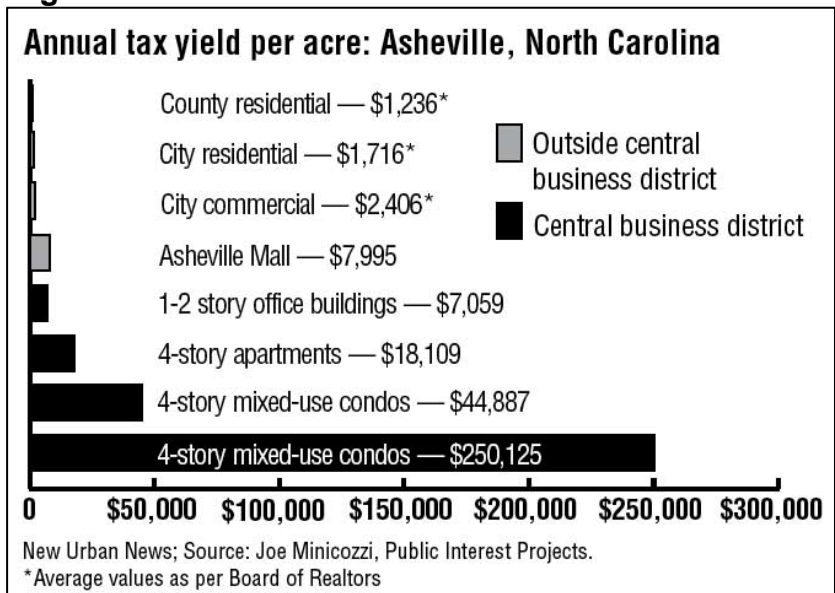
"Urban development produces a valuable yield, like that of a cash crop, while low-density suburban development is the equivalent of growing an acre of grass. By our estimates, suburban development doesn't cover the cost of the infrastructure that serves it in a reasonable period of time."
-Joe Minicozzi, Public Interest Projects

⁹ Chicago Metropolitan Agency for Planning. MetroPulse. <http://www.metropulsechicago.org>

¹⁰ Kooshian, Chuck and Steve Winkelman. 2011. Growing Wealthier: Smart Growth, Climate Change and Prosperity. Center for Clean Air Policy. <http://www.growingwealthierinfo/>

“It has been shown that communities that do not pursue smart growth, but are proximate to ones that do, stand to benefit from improved access to jobs, services, and community spaces.” On the other hand, conventional, sprawling development patterns

Figure 15



result in higher infrastructure costs, higher fuel bills, hindered worker access to jobs, lower rates of walking, higher health care costs, lower air quality, and greater ecosystem disruption.^{10a}

Faced with little to no new property tax revenues following the recession, local governments around the nation are seeking to improve their fiscal responsibility and are reevaluating how their communities will grow into the future. As an example,

Sarasota County and Asheville, North Carolina hired a consultant to analyze the tax revenue per acre realized by development type and location. The study found that dense, mixed-use developments, usually downtown or adjacent to transit, are far superior in generating tax revenue for their local governments than single-use developments, such as big-box stores. In the Asheville area, mixed-use in a dense, walkable area was the most productive development, in terms of paying for public services. As an example the 4-story mixed-use condos generated more than five times more per acre than the mall (Figure 15).¹¹

¹¹ New Urban News Network. A New Urban News Publication. Langdon, Phillip. Best best for tax revenue: mixed-use downtown development. www.newurbannetwork.com. Article accessed October 2011.

Figure 16

Ten Smart Growth Principles – Fiscal, Economic, and Quality of Life Benefits

Principle 1: Create a Range of Housing Opportunities and Choices

Locating households in varying types and income levels in accessible areas can reduce combined housing and transportation costs. In particular, opportunities for lower income families to live closer to jobs can result in better employment rates and higher incomes. Putting more people near jobs in general, i.e., achieving a jobs/housing balance, can also reduce vehicle miles traveled (VMT) through shorter trip lengths, and lessen exposure to congestion. Constructing housing for all price points has the potential to meet an untapped market demand, thus creating jobs in construction and attracting additional residents and employers.

Principle 2: Create Walkable Neighborhoods

Attention to design of sidewalks and streetscapes can foster a sense of community by providing safe shared spaces for neighbors to interact. This is often reflected in property values. Walkable neighborhoods can also increase outdoor exercise rates by encouraging “active travel”, substituting walking or bicycling for trips otherwise made by car. Active travel not only reduces VMT but has been linked to better health, which in turn has its own economic benefits.

Principle 3: Encourage Community and Stakeholder Collaboration

When citizens contribute to a plan they reveal their vision for the neighborhood city or region, while also gaining insight into the trade-offs associated with decision making. Economist David Lewis has argued that, “It is the procedures of deliberation, and the release of peoples’ communicative instinct to allow better arguments to come into play, that precipitate the formulation of values as a basis for collective, welfare-maximizing policy making.

Principle 4: Foster Distinctive, Attractive Communities with a Strong Sense of Place

Many projects that create a sense of place using smart-growth principles demonstrate economic success in the form of increased tax revenue, more jobs, higher income levels, downtown revitalization, and business growth. In some regions, well-designed districts stand out because there is a relative scarcity of similar places with pleasing architectural design, public art, tree canopy, benches, fountains or other similar amenities, so they are able to command higher rents- what some have called the “place making premium.”

Principle 5: Make Development Decisions Predictable, Fair, and Cost Effective

Streamlining the bureaucratic process for projects a community actually desires can attract investors, who value quicker turnaround and lower costs, and seek to minimize uncertainty. For a community to be successful in implementing smart growth, it must be embraced by the private sector.

Principle 6: Mix Land Uses

A diversity of land uses can result in fiscal and economic benefits. Mixed-use developments can generate economic activity with less green house gases and energy use because they put businesses and customers close together. Demand for mixed-use development is increasing. For developers, mixed land uses can save costs for parking, which often can be shared between daytime and night-time uses, and can achieve savings on maintenance, energy, and even marketing. For communities, mixing land uses may also make sense from a fiscal point of view.

Principle 7: Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas

Open space can raise the value of nearby property. Natural open space areas within or near cities can attract not only tourism but retirees and businesses wanting to relocate to attractive communities. Working farmland helps promote local food production and brings in more revenue than it costs in public services. Natural open space also provides a number of natural “services” that would otherwise either cost society money to provide artificially or cost society money due to their lack. Finally, open space can offer a psychological escape value for those seeking respite from the stresses of modern life.

Principle 8: Provide a Variety of Transportation Choices

Public transit and non-motorized travel consume less energy, save on fuel and car costs, emit less pollution and make it possible for some auto drivers to drive less. Increases in accessibility can help workers get to better jobs and reduce household travel costs. There are additional economic benefits of enhancing travel choices. “Fixed guideway” transit – such as rail and rapid busways – generally increases nearby property values and attract private investors seeking to profit from the appeal of increased accessibility. Public transit can also provide jobs during construction and long term employment for operations. Walking and biking amenities can also spur economic activity by attracting tourists, commuters, and walkers.

Principle 9: Strengthen and Direct Development Towards Existing Communities

Compact infill development can reduce VMT while supporting a vigorous economy. Directing growth to existing communities helps to reduce the cost of infrastructure on a per capita basis and helps to prevent abandonment and blight. Denser central cities have enhanced productivity due to agglomeration effects.

Principle 10: Take Advantage of Compact Building Design

Compact building design results in a more compact regional footprint at the metropolitan scale. At the neighborhood and project scale, compact building design means higher built densities per acre of land. Together with compact regional design, this can save significant sums in infrastructure and services costs. In addition, urban buildings with shared walls and smaller floor areas consume less energy and water per household. There is also evidence that building within a smaller footprint is better for handling storm water runoff.^{10a}

Sprawl Retrofit

Sprawl has been the dominant growth pattern in most metropolitan areas in the United States for over 50 years. Sprawl, includes both residential and non residential land use development, expands outward from city centers in a noncontiguous/scattered land use pattern and is often beyond the reaches of urban infrastructure. Residential development primarily consists of low density, single family housing and is separated from non-residential development consisting of shopping centers, strip-malls along arterial roads, industrial and office parks, free standing industrial and office buildings, schools and other public buildings. Noncontiguous, separated land uses, and a lack of connectivity of street networks contributes to an increase in auto-dependence and results in rapid land consumption.

“Sprawl is also defined as:

- 1) a population widely dispersed in low-density residential development;
- 2) rigid separation of homes, shops, and workplaces;
- 3) a lack of distinct thriving activity centers, such as strong downtowns or suburban town centers; and
- 4) a network of roads marked by large block size and poor access from one place to another.”¹²

In communities across the country, auto dependent communities are recognizing that development patterns characterized as sprawl are haphazard, inefficient, and unsustainable. Successful sprawl retrofits are occurring in the United States to transform underperforming, auto-oriented suburban property into more livable, sustainable places, including those that reconnect people with nature (even in more dense urban environments), support car and bike sharing, enhance the environmental and energy performance of buildings, optimize areas served by transit with dense, mixed-use, and better accommodate the aging population. The authors of *Retrofitting Suburbia* state, “The ability of suburban retrofits to simultaneously address the overarching challenges [of for example, shifting demographics and an aging population, public health concerns, affordability, and climate change], while reviving local communities and making them more livable, has raised tremendous interest in the subject.”

“America’s investment in automobiles and roads has resulted in an unprecedented rate of land consumption. During the past generation Americans have chosen to develop land at ten times the rate of population growth. The external harm from this pattern of development is its consumption of undeveloped land that would otherwise provide natural habitat or land for agriculture. Internally this low-density development increases the travel distance between any two destinations making it even more likely that people will drive.”

Doug Farr

Sustainable Urbanism, Urban Design with Nature

Opportunities for retrofitting sprawling land use patterns include:

- **“Re-inhabitation:** The adaptive reuse of existing structures for more community-serving purposes, often referred to as “third places” - places other than home or work that provides for and contributes to civil society, democracy, civic engagement, social interaction, and creates a sense of place.
- **Redevelopment:** Replacing existing structures and/or building on existing parking lots, generally with a compact, walkable, connected mix of uses and public spaces that supports a less auto-dependent and more socially engaged lifestyle.
- **Regreening:** Demolition of existing structures and revitalization of land, as either parks, community gardens, or reconstructed wetlands.”¹³

¹² Ewing, Reid, Schmid, Tom, Killingsworth, Richard, Zlot, Amy, and Stephen Raudenbush. 2003. Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity. *American Journal of Health Promotion*, Vol. 18, No. 1., Sept/Oct. 2003, pp. 47-57.

¹³ Dunham-Jones, Ellen, and June Williamson, *Retrofitting Suburbia*. 2011. New Jersey: John Wiley & Sons, Inc.

Figure 17

Tactics for Retrofitting

- *Reuse the box.* Adaptive reuse of vacant commercial buildings for new, often community-serving uses, such as libraries or medical clinics, is both socially desirable and reduces waste.
- *Provide environmental repair.* Retrofits sometimes provide the opportunity to reconstruct wetlands and creeks, components in the metropolitan watershed that were erased or diminished by the suburban development pattern.
- *Revise zoning codes and public works standards.* Make it easier to build compact, mixed-use developments with complete streets, and make it harder to build single-use auto-dependent places.
- *Consider future connectivity and adaptability.* If desired street connections cannot be achieved when the retrofit is originally designed and constructed, because of NIMBY concerns or other barriers, provide easements for future linkages. If desired densities and parking decks cannot be justified yet, design parking lots as future building sites, with utilities placed in the future streets at the outset.
- *Use appropriate street types and real sidewalks.* The 2010 ITE manual on walkable urban thoroughfares provides recommended design guidelines for a broad range of context-sensitive street types.
- *Keep block size walkable.* Without careful modulation, the hybridization of suburban building types and parking into urban blocks and streets can lead to oversized blocks and monotonous building fronts.
- *Diversify housing choice and price.* The future success of suburbs will hinge on their ability to respond to changing demographics; provide more housing choices.
- *Add new units to existing subdivisions.* Infilling residential neighborhoods with accessory dwelling units (ADUs) can provide affordable housing choices for singles and seniors, and increase residential density without dramatically altering the morphological pattern.
- *Invest in quality architecture.* The most successful and sustainable retrofits *will be beautiful, durable, culturally significant, and built to meet high standards of environmental performance both in public spaces and buildings.*

Source: Adapted from Retrofitting Suburbia^{13a}.

Priorities for Accommodating Growth in the 3 Strategy Areas

Reinvestment in Existing Communities

The location of the County at the edge of the Chicago metropolitan region, rich in culture and heritage, community pride, recreational and scenic amenities of the Fox River and other natural areas, and fertile, productive soils for agriculture, makes Kane County a highly desirable place to live. The Kane County Board and Regional Planning Commission have a 50 year history of creating a vision and strategically planning the County's future built environment. Growth pressures, over the past two decades,

identified a need to strategically manage the rapid, exponential increases in population growth. The County Board addressed these growth challenges by utilizing the Land Resource Management Planning Act authority and by adopting a robust conceptual land use strategy and land resource management plans. The 2040 Conceptual Land Use Strategy continues the three distinct land use strategy areas that originated with the 2020 Plan, and further redefines those areas:

- Sustainable Urban Area
- Critical Growth Area
- Agriculture: Food and Farm Area

In summary, as it relates to the Built Environment, the purpose of the three land use strategy areas is to direct growth toward the established cities and towns along the Fox River and encourage redevelopment of underutilized infill sites in the Sustainable Urban Area, to influence the design of new development, potential sprawl retrofits, and strengthen existing communities in the Critical Growth Area with the implementation of the Smart Growth and Livability Principles; and to preserve the rural character of our small towns while protecting our food production capabilities in the Agriculture: Food and Farm Area.

A carefully planned approach is in order if we are to accommodate a 51% population growth from 2010 to 2040, while at the same time minimizing land consumption. Kane County supports reinvesting in our existing communities as a strategy to accommodate the new growth in population, employment, and housing expected by 2040. Prioritizing growth in existing communities will minimize land consumption and help meet the 2040 goal of preserving 50% of the County land area in open space and working agriculture by 2040. In addition to preserving natural resources in undeveloped areas, redeveloping infill sites capitalizes on existing infrastructure and services communities have already invested in and can also revitalize stressed communities, increase tax revenues, and provide opportunities to create affordable and more diverse housing¹⁴. Reinvesting in existing communities, also a recommendation of the GO TO 2040 Plan, provides support to the goals of the 2040 Plan and support to local governments as they plan for livable communities.

CMAP's GO TO 2040 strategy is to redevelop underutilized acres:

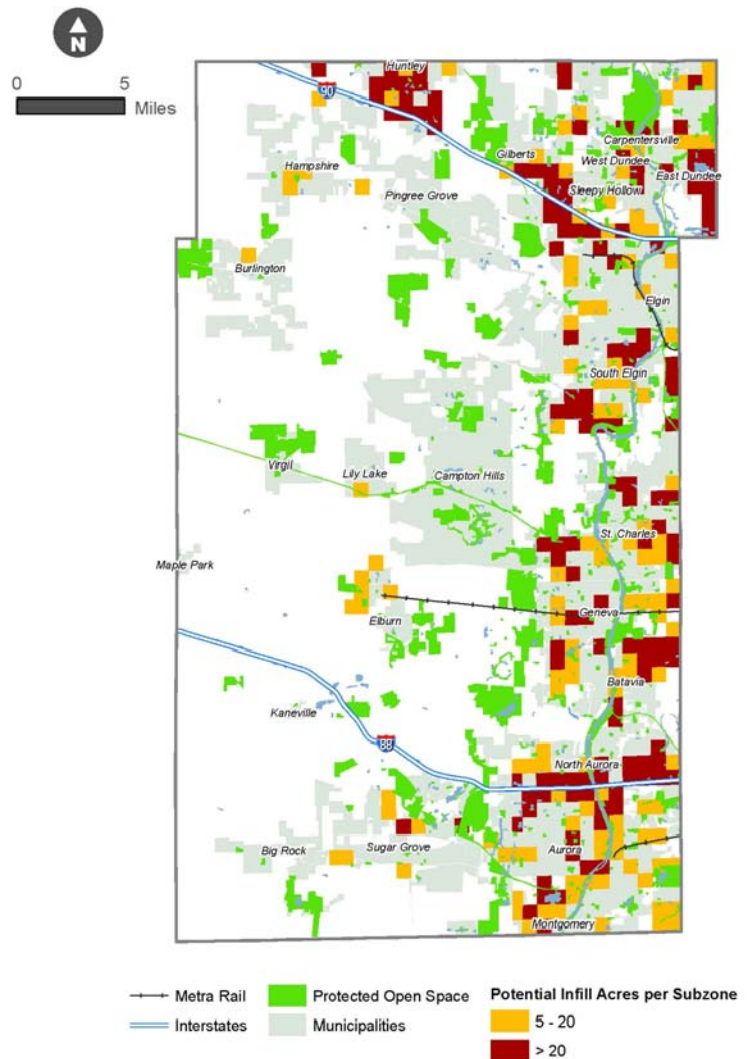
“A critical element of the GO TO 2040 is encouraging development in existing communities, where infrastructure to support it is already available. According to analysis of infill opportunities, there are over 100,000 acres of land within existing municipal boundaries that are available for redevelopment. These are parcels that are vacant or are “underutilized” commercial and industrial properties. By 2040, GO TO 2040 seeks to redevelop this land with a mix of residential and non-residential uses, and projects that it could accommodate around half of the region’s growth – or 1.2 million people.”^{6a}

¹⁴ Chicago Metropolitan Agency for Planning. Infill: CMAP Regional Snapshot Opportunities Report.

According to a regional analysis of infill opportunities referenced above, Kane County's municipalities hold approximately 18,076 acres of potential infill acres, currently vacant or underutilized commercial and industrial properties (Figure 18). Fifty percent of Kane County's infill sites are located near transit and job centers and are within the Sustainable Urban Area. New growth within the municipalities should be directed toward these vacant and underutilized properties using existing or planned infrastructure.^{14a,6b}

“Smart growth focuses growth in existing communities to avoid sprawl; and advocates compact, transit-oriented, walkable, bicycle, friendly land use, including neighborhood schools, complete streets, and mixed-use development with a range of housing choices. Its goals are to achieve a unique sense of community and place; expand the range of transportation, employment, and housing choices; equitably distribute the costs and benefits of development, preserve and enhance natural and cultural resources, and promote public health [community health].”¹⁵

Figure 18



Source: Chicago Metropolitan Agency for Planning Infill Analysis, 2010 using Kane County Assessor data, 2008.

Link Transit, Land Use, and Housing

The 2040 Conceptual Land Use Strategy (Figure 19) identifies two important transportation corridors: the Randall/Orchard Road BRT Corridor and the Illinois Route 47 Corridor. These categories are also identified on the 2040 Land Use Map and included in the land use categories of this section. It is critical to the long term development of these corridors that the County's policies are clear and generally

¹⁵ U.S. Department of Transportation, Federal Highway Administration, Federal Transit Administration. Livability in Transportation. Planning Approaches that Promote Livability. Report FHWA-HEP-10-028.

consistent with municipal plans as well as related to the future availability of municipal sewer and water. Identification of these corridors is not to be interpreted as support for premature conversion of agricultural and other land uses without connection to existing or planned municipal infrastructure.

The Randall Road/Orchard Corridor –

The corridor has been studied to determine the land use conditions/patterns that are needed to support a Bus Rapid Transit (BRT) corridor and how incremental implementation of elements of a BRT corridor can be accomplished. While it is anticipated that new land uses and redeveloped areas at future station areas and stops would be approved through municipal decisions, Kane County will have a major role in coordinating station area access improvements to the County highway right-of-way in order to implement a BRT system. Kane County will coordinate with the municipalities and Pace officials in order to coordinate transit and land uses.

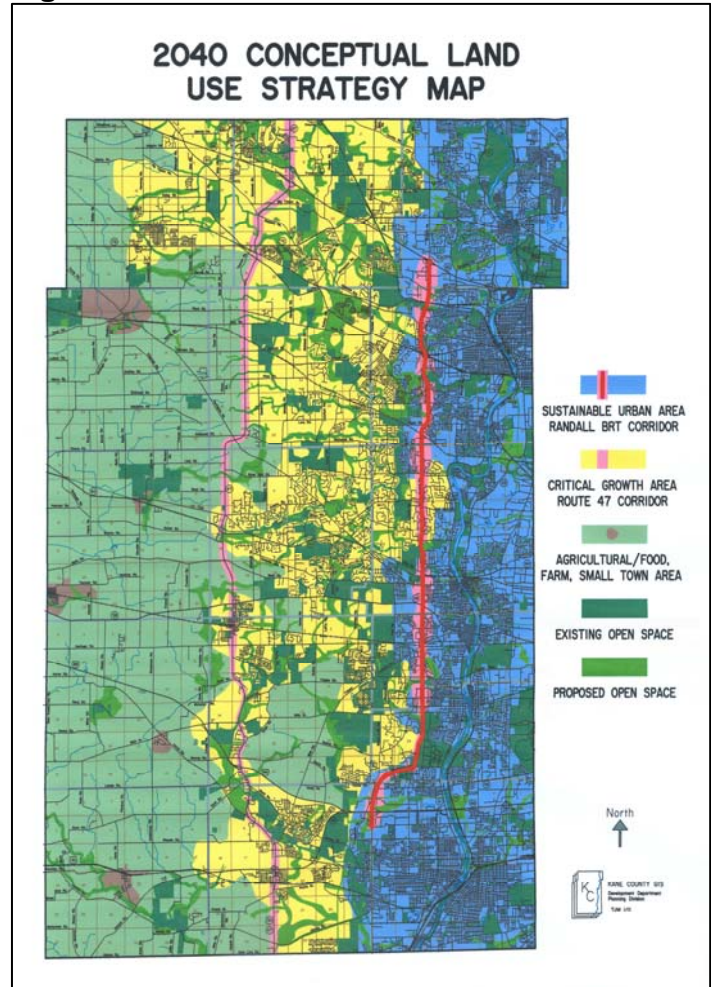
The Illinois Route 47 Corridor –

The vision for the IL Route 47 Corridor (Corridor) is to encourage a healthy population and economy through the promotion of sustainable land use practices, complete streets, and smart growth and livability principles. The Corridor presents an opportunity for local agencies along the corridor to work collectively to mitigate the impacts of growth and work towards commonly defined objectives as defined in the IL 47 Corridor Planning Study. The study aimed to address the following objectives established by stakeholders:

- Keep traffic moving
- Coordinate local, regional, and state decision-making
- Encourage growth nodes that promote transit and walking
- Protect natural areas
- Promote placemaking
- Strengthen existing developed areas

Recognizing that major roadway expansions are expensive and unlikely, local and regional coordination should focus on addressing the challenges associated with

Figure 19



accommodating growth in the corridor with land use practices and tools outlined in the IL 47 Planning Study toolbox (see link). Furthermore, IL 47 travels through agricultural areas as well as connecting the corridor's regional centers of Huntley, Elburn, and Sugar Grove. The County recognizes that more than conventional boundary agreements are needed to address the challenges associated with growth in the governmental agencies that influence the Corridor. Thus, the promotion of regional coordination is viewed as an especially important strategy.

The purpose of the state funded IL 47 Corridor Planning Study was to provide municipalities and other governmental agencies with an understanding of the planning challenges associated with growth and to recommend strategies or tools that can be used to address these challenges. The study included broad participation and input from the municipalities along Illinois Route 47. It is of paramount importance that the County prevents premature development of unincorporated areas to uses inconsistent with County or municipal plans by requiring annexation prior to future urbanization. Once annexation and extension of utilities have occurred, the municipalities can approve developments

consistent with the design guidelines and toolkit included in the Illinois Route 47 Corridor Study as well as to create livable, sustainable, and healthy communities.

Enhancing our neighborhoods or creating new neighborhoods that are complete, walkable neighborhoods - within existing communities and within corridor nodes that link transit, land use, and housing - is important to achieving livable, healthy, and sustainable communities.

Elgin's Sustainability Action Plan describes a **great urban neighborhood** as one that: *"functions well when residents can meet their daily needs, such as getting to work and shopping. This means having the right neighborhood mix of housing, retail, open space, and transit, with new housing located near reliable transit lines. We need to accommodate cars without having to rely on them. A great neighborhood also needs a full range of City services, safe and vibrant streets, gathering places, and an appreciation for its special character."*

Source: City of Elgin, Sustainability Action Plan. www.cityofelgin.org.

Community Design, Physical Activity and Health

Community design – the way streets are laid out, the distance between destinations, and the mix of homes and stores –is linked to physical activity because it influences whether people must drive or are able to choose more physically active travel such as walking. **Kane County promotes community design and development that is more compact, mixed, and multi-modal.** Community design that integrates smart growth principles, including compact, mixed-use and multi-modal development, has the potential of reducing vehicle ownership and travel 20-40%, and significantly increase walking, cycling, and public transit.¹⁶ It's imperative that Kane County's municipalities focus on design and development that encourage healthy living, foster a sense of

¹⁶ Litman, Todd. 2011. Victoria Transport Policy Institute. Land Use Impacts in Transit.

community, builds social cohesion, and allows greater opportunities for civic engagement. As introduced in this chapter the built environment consists of three elements: land use patterns, urban design characteristics, and transportation systems (Figure 1). Together, these elements influence the health promoting behaviors of those that live, work, and play in Kane County.

“Compact, connected communities encourage regular walking, wheeling, and transit use, reducing the need for auto travel – while making trips shorter for those who choose to drive. Less driving helps reduce green house gases (GHGs) and other pollution, lowering energy use and reducing dependence on foreign oil. Compact connected development patterns require less land and pavement, reducing stormwater runoff, groundwater pollution, and loss of wildlife habitat, fields, and forests. The daily exercise associated with more active transportation choices has been shown to improve human health, reduce obesity and health care costs, and encourage community social interactions. Even those who drive to a mixed-use “park-once” district (or traditional downtown) find they can get exercise and social connections without having to drive between every destination – if a safe walking and wheeling network is in place.”^{14a}

Land use patterns or the arrangement of land uses such as, residences, offices, restaurants, grocery stores, parks and other places, determines the proximity between trip origins and destinations, regardless of street network connectivity or public transit options. *Density* or degree of compactness is a requirement for shortening distances between destinations, reducing the need to use a vehicle and increasing the odds that a person will shift from driving toward walking, bicycling, and transit use.¹⁷ Activities located closer together increase the attractiveness of bicycling and walking, as well as proving the “mass” of population that is necessary for transit to be viable. *Land use mix* is the degree to which different types of uses (residential, commercial, or retail) are located within close proximity of one another. Mixed-use development

describes the co-location of multiple uses over the same area. “Mixed use can be measured both in terms of vertical and horizontal mix. Vertical mix occurs when different land uses are stacked one on top of another, such as housing located over commercial or retail establishments. Horizontal mix is when different land uses are located within close proximity to each other – these uses are mixed together, as the term implies.”¹⁸ Mixing uses decreases distances between destinations and is believed to be an important strategy for increasing walking and bicycling. Older neighborhoods, built before single-use zoning became dominant, are scaled for pedestrians and have visually attractive shopping districts within them. These neighborhoods have been shown to produce the greatest amount of physical activity, especially walking. Single-use development, the dominant form of development in the United States, offers little

¹⁷ Apogee Research Inc. 1998. The Effects of Urban Form on Travel and Emissions. A Review and Synthesis of the Literature. Washington D.C.: Draft report prepared for the United States Environmental Protection Agency. HBIX Reference C611-005.

¹⁸ Frank, Lawrence D. and Peter Engelke. Year. How Land Use and Transportation Systems Impact Public Health: A Literature Review of the Relationship Between Physical Activity and the Built Form. Georgia Institute of Technology.

opportunity for running errands on foot or bicycle because there are few destinations within easy reach of housing. Kane County promotes the use of compact, mixed-use, multi-modal development that incorporates other smart growth and livability principles. A comparison of the smart growth and conventional, sprawling development patterns is shown in Table 2.

Table 2. Comparing Smart Growth and Sprawl

	Smart Growth	Sprawl
Density	Higher-density, clustered activities	Lower-density, dispersed activities
Growth pattern	Infill (brownfield) development	Urban periphery (greenfield) development
Land use mix	Mixed land use	Homogeneous (single-use, segregated) land uses
Scale	Human scale. Smaller buildings, blocks and roads. Designed for pedestrians	Large scale. Larger blocks, wider roads. Less detail, since people experience the landscape at a distance, as motorists
Services (shops, schools, parks)	Local, distributed, smaller. Accommodates walking access.	Regional, consolidated, larger. Requires automobile access
Transport	Multi-modal transport and land use patterns that support walking, cycling and public transit	Automobile-oriented transport and land use patterns, poorly suited for walking, cycling and transit
Connectivity	Highly connected roads, sidewalks and paths.	Hierarchical road network with numerous dead-end streets, and unconnected paths and sidewalks
Street design	Streets designed to accommodate a variety of activities. Traffic calming	Streets designed to maximize motor vehicle traffic volume and speed
Planning process	Planned and coordinated between jurisdictions and stakeholders	Unplanned, with little coordination between jurisdictions and stakeholders
Public space	Emphasis on the public realm (streets, sidewalks and public parks)	Emphasis on the private realm (yards, shopping malls, gated communities, private clubs)

Source: Victoria Transportation Policy Institute. 2006. Online TDM Encyclopedia. www.vtpi.org.

Urban design characteristics of the built environment, such as the streets, parks, squares, plazas, buildings, lawns, sidewalks, bus stop shelters, crosswalks, trash bins, curbs, fences, billboards, plantings, and other elements define the communities we live in. “Urban design characteristics influence how people perceive the built environment. Design [such as building design, orientation, setback, along with other aesthetic considerations] plays a large role in determining whether an environment is perceived as hostile or friendly, attractive or ugly, and vibrant or dull.^{17a} Urban design denotes small-scale features of the built environment that impact how people feel about being in specific places.”^{2a} As Dr. Jackson, author of *Designing Healthy Communities*, explains:

*“The built environment is not a community. Community is the **software** for the hardware of the built environment, as anyone who has struggled with an overloaded, outdated, or failing computer knows, both “wares” need to be working or the system crashes. The **hardware**, the way we build our neighborhoods, urban centers, cities, and states can make it easier or harder to feel the sense of community within a geographic area. We choose some of our communities and others are imposed on us; in either case, the built environment can entice us to*

increase our participation or can create barriers that we must choose to overcome.¹⁹

Healthy Community Design, an initiative of the Center for Disease Control, promotes the importance of the way we design and build our communities as they can affect our physical and mental health. According to the Centers for Disease Control (CDC), the purpose of Healthy Community Design is to “integrate evidence-based health strategies into community planning, transportation, and land-use decisions.” In 2010, with the adoption of the 2040 Conceptual Land Use Strategy, the Kane County Board adopted the key planning objectives promoted by the CDC for Health Community Design in an effort to reduce the epidemic of obesity and foster healthier communities:



- Integrating physical activities into residents’ daily lives by developing communities that promote walking to and from places of education, recreation, shopping, work and workshop
- Encouraging the building of communities with residences and businesses located closer together to shorten vehicle trips and encourage the use of other modes of transportation, such as biking and public transit, when walking may not be an effective option
- Creating streets and public areas that are interconnected that provide an appealing, safe and comfortable environment for walking and biking
- Providing transit services that are within walking distance of homes, businesses and other facilities.²⁰

Healthy Impact Assessments (HIA) are a tool that is increasingly being used in communities to identify the health impacts of proposed and implemented policies, programs, and projects. HIA can be used to integrate community health into the decision-making process and enhance communication between multiple stakeholders, including health and planning practitioners and policy makers.

Transportation systems are the aggregate results of investment in transportation infrastructure and, in part, include the network of streets in a city, the design of individual streets and highways, transit systems, and separated systems for nonmotorized users, such as jogging and bike paths. “Transportation systems connect places to each other, determining how feasible it is to use different types of transportation, including walking and bicycling, to get from one place to another.” Transportation systems influence travel behavior in at least three ways:

- **“Street Networks** influence [travel] mode choice and trip frequency in the ways they connect trip origins and destinations. Street networks are rated as either *high in connectivity*, where there are a *large number of blocks and intersections per some unit of area*, or *low in connectivity*, where there are *fewer blocks and intersections over the same area*. A “highly connected” street network is one that has many possible routes between destinations, which means that the trip between any two destinations is reasonably direct. The grid pattern is the archetype of the high

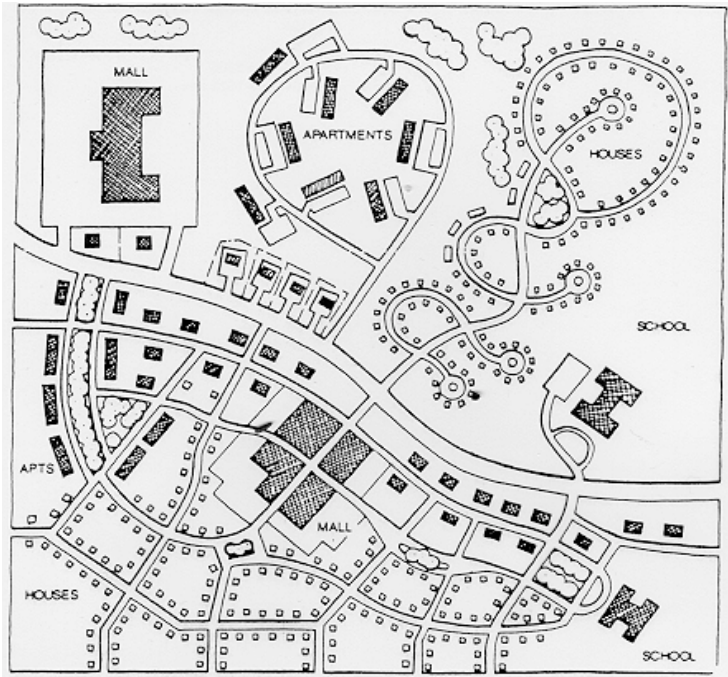
¹⁹ Jackson, Richard. 2012. *Designing Healthy Communities*. San Francisco. John Wiley & Sons, Inc.

²⁰ Centers for Disease Control. Healthy Community Design.
http://www.cdc.gov/healthyplaces/healthy_comm_design.htm.

connectivity network. Traditional street networks such as the grid pattern reduce trip distances and increase route choices, factors believed to increase biking and walking. [Development characterized as sprawling], in contrast, minimizes the degree of connectivity between trip origins and destinations through the heavy use of T intersections, cul-de-sacs and reduced access to subdivisions (Figure 20).

- **Street Design** “facilitate[s] either automobile travel or nonmotorized travel. Streets that are wide, smooth, and straight encourage automobile travel at fast speeds and discourage travel by foot or bicycle. Additionally streets that incorporate pedestrian and bicycle facilities (bike lanes, sidewalks, crosswalks, etc.) and that are calmed (i.e., streets that contain traffic-slowing obstacles and devices) are believed to facilitate more walking and bicycling. Street design impacts route quality for different [travel] modes. Streets can have amenities such as shade trees, crosswalks, and bike paths, for example, which will make walking and biking more attractive.
- **Physically separated biking and walking systems** can increase walking and biking with dedicated bicycle and pedestrian facilities such as bike paths and walking trails. While these systems are increasingly popular, it is generally not feasible to create dense networks of them in existing urban areas.”

Figure 20. Comparing Connectivity of Street Networks



In summary, “higher densities, a greater mixture of land uses, a balance between housing and jobs, pedestrian- and bicycle friendly site and street design, grid street networks, and the presence of separated facilities for bicycles and pedestrians all have been shown to increase walking and biking.”^{18b} Kane County supports healthier choices for its residents and encourages community design that includes attention to all three elements of the built environment as described in this section: land use patterns, urban design characteristics, and transportation systems.

Policies:

1. Identify incentives that will attract investment to new development, redevelopment, and suburban retrofits in existing, urban areas, employment centers, and transit nodes and corridors.
2. Seek funding opportunities that provide support to municipal plans and projects that implement the 2040 Plan.
3. Assist municipalities in removing barriers within local comprehensive plans or regulations that hinder implementation of the Livability Principles, Smart Growth Principles, and Healthy Community Design criteria.
4. Identify and target/support priority areas for transit-supportive land use, pedestrian-oriented design and complete streets along and connecting to the Randall/Orchard Rd. Bus Rapid Transit Corridor and the IL Route 47 Corridor.
5. Encourage the use of compact and mixed-use, multi-modal development that minimizes the need to drive, prioritizes infill and redevelopment, and avoids sprawling land use patterns.
6. Promote public health through coordinated land use and transportation planning and project implementation.
7. Establish land use policies and guidelines to ensure consistent, transit-supportive land use and development along the Randall/Orchard Road Corridor.
8. Support the Built and Natural Environment Strategies adopted in the Fit Kids 2020 Plan.
9. Promote land use patterns that create sustainable, energy efficient communities.

