

The Disappearing Front Range: Urban Sprawl in Colorado

INTRODUCTION

Atlanta, Georgia, is expanding by more than 2 acres every hour. The New York metropolitan region now stretches almost 150 miles from New Haven, Connecticut, to Trenton, New Jersey, absorbing 15 other metropolitan areas in the process. When traffic is bad—which some would argue is *always*—it can take most of the day to drive the 110 miles from one end of the Los Angeles region to the other. **Urban sprawl** is the term we use for low-density development at, and sometimes beyond, the outer margins of our metropolitan areas. Sprawl is now the prevailing form of urban growth in North American cities. It gobbles up acre upon acre of valuable open space, exacerbates problems of traffic congestion, traps the population under a hood of smog, and adds to the expense of providing urban services. It is possible to plan urban growth that exhibits little of what we think of as "sprawl," but there are numerous influences that drive low-density growth on the **urban fringe** (Figure 11.1).

How did sprawl come to dominate growth in North American cities? Since the beginning of the Industrial Revolution, cities have been expanding due to rural-urban migration (Chapter 4). However, it has not always been possible to live far away from the downtown central business district (CBD) where most jobs were located. In each era of urban expansion, the spatial extent of the **urbanized** (or built-up)

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Figure 11.1
California.



New suburban growth encroaching on foothills in Laguna Michel,

area was constrained by the prevailing transportation networks. Each new transportation technology has made new areas on the urban fringe accessible to the city center and has been accompanied by new residential construction more spread out than those of the previous era (Figure 11.2).

Until about 1890, people got around in cities by walking or by horse, which limited cities to a dense circular shape because of the slow speed of travel. Cities could not be any larger than the distance a person was willing and able to walk to work. By the 1880s, American cities were bursting at the seams. From 1890 to 1920, railroad-type technology, previously used for long-distance transport, was applied to short-distance urban travel with the building of commuter rail lines and electric streetcars. Once-rural areas became available for urban development with the arrival of a new streetcar stop or rail station. Cities of this age developed a star-shaped pattern with arms of growth along the rail lines. By the 1920s, mass-produced automobiles, typified by Henry Ford's Model T, became affordable to middle-class Americans. Cars provided accessibility to the areas between the streetcar lines, which began to fill in. Then, beginning in the early 1950s with President Eisenhower's initiation of the interstate highway system, urban freeways enabled people to commute to downtown from distant suburbs built far beyond the old urban fringe. Entire suburban towns served by freeways grew at the periphery of cities. Circular beltways, now common in most large metropolitan areas, further the development of outlying suburbs as cities in their own right, no longer subservient to the old downtown.

The latest "beltway" stage of Figure 11.2 recognizes that the CBD is no longer the sole destination to which people travel; shopping, offices, and industry followed

Source: Based on Adams, John S. 1970. Residential Structure of Midwestern Cities. *Annals of the Association of American Geographers* 60:56. Courtesy Blackwell Publishers.

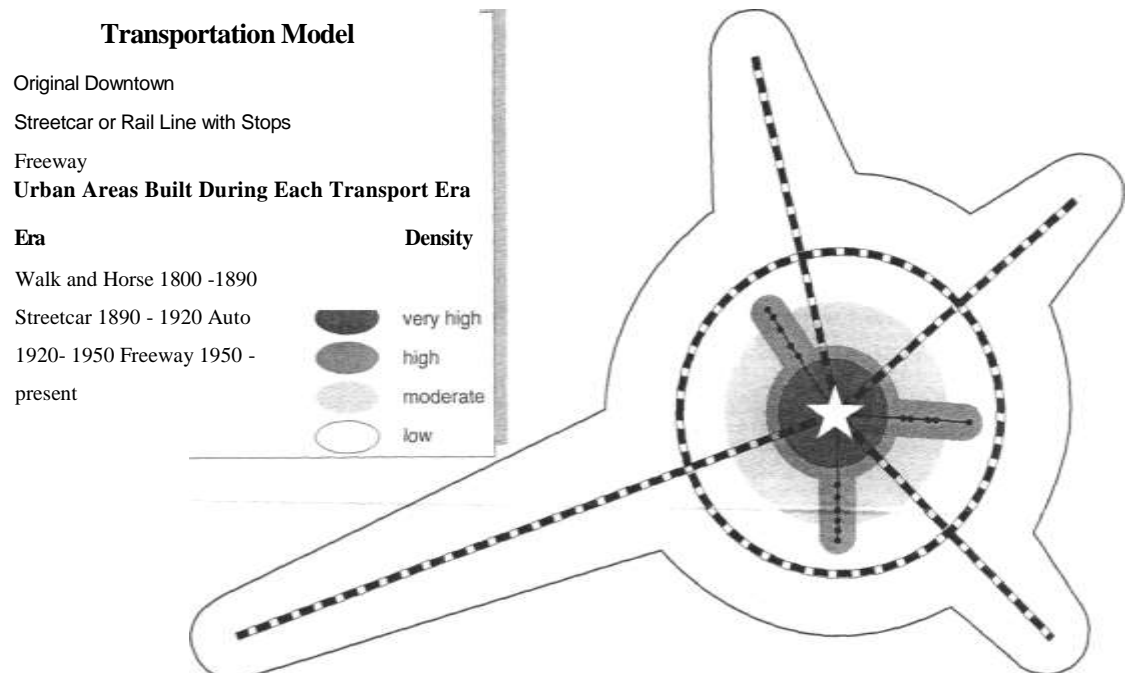


Figure 11.2 The latest transportation technology has made new areas on the urban fringe accessible to the city center. Each transport era was accompanied by residential construction more spread out than the previous due to increasing ease of movement. The spatial structure of today's city reflects that different parts were built in different eras.

the middle class to the suburbs. The expression "bedroom suburbs," popular in the 1950s and 1960s, was first supplanted by the notion of **urban realms**, or relatively independent suburban regions, and then by **edge cities**, or "satellite towns" (see Chapter 10). Edge cities are huge retail and office clusters that have emerged around the intersections of major highways, around airports, and in older downtowns of what were once smaller surrounding cities now absorbed by the sprawling metropolis (Figure 11.3). High-tech companies frequently congregate in edge cities to be near their well-educated suburban workforce. Data transmission, electronic funds transfer, on-line information services, and e-shopping offer even greater locational flexibility for both companies and residents and hence promote further decentralization. Probably every metropolitan area with more than half a million people has at least one edge city. Some of the better-known national examples include the Galleria area west of downtown Houston, containing the 64-story Transco Tower; the area around the Massachusetts Turnpike and Route 128 in the Boston area; the Schaumburg area 30 miles west of downtown Chicago; the Perimeter Center near Atlanta; Tyson's Corner southwest of Washington, D.C.; and the Beverly Hills-Century City area in Greater Los Angeles.

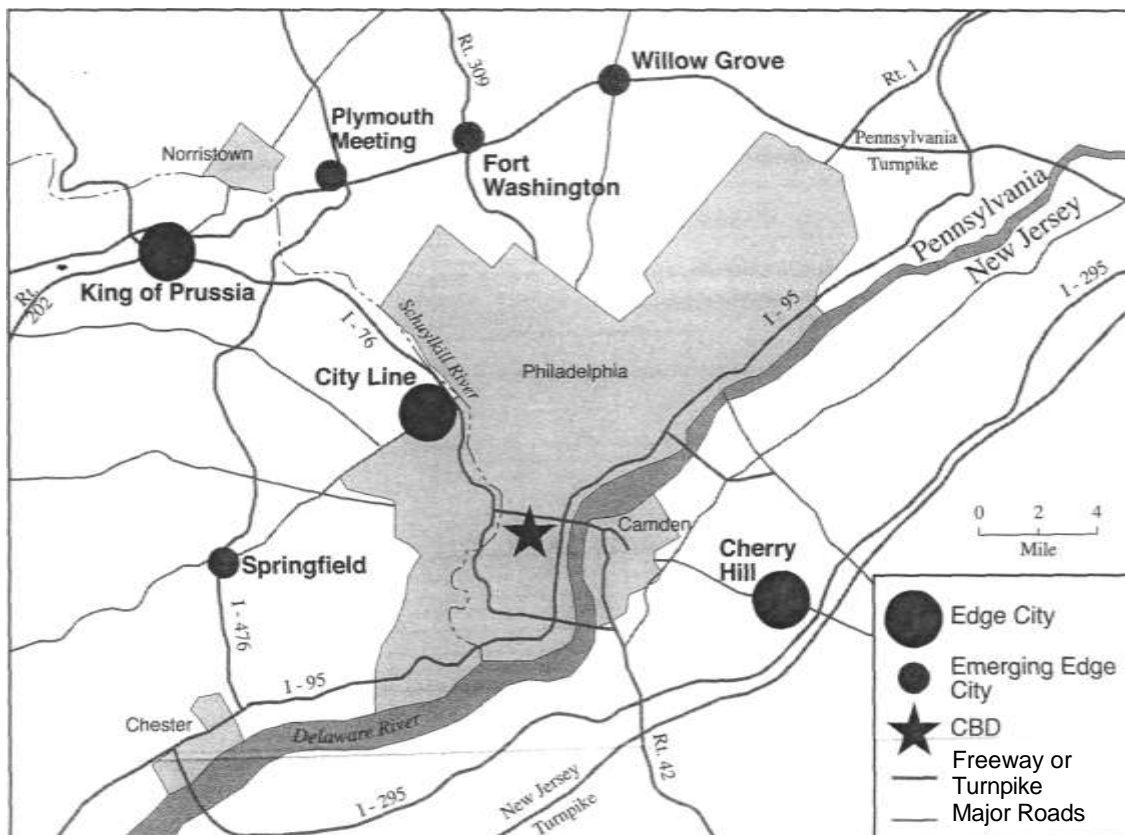


Figure 11.3 Founded in 1682, Philadelphia is the fifth-largest metropolitan area in the United States, with more than 5 million people. Suburban downtowns, or "edge cities," have evolved in what used to be bedroom suburbs and outlying towns. The largest is in King of Prussia, where a huge complex of offices, high-tech companies, and warehouses has coalesced around one of the earliest and largest shopping malls at the intersection of the Schuylkill Expressway (I-76) and the Pennsylvania Turnpike. Total employment within a 5-mile radius is now more than 320,000 workers, many of whom commute to King of Prussia from other suburbs or even Philadelphia proper. Cherry Hill, New Jersey, and City Line Avenue are two other major suburban nuclei of jobs, shopping, and traffic. Others are emerging at strategic highway intersections, such as the Fort Washington and the Willow Grove areas.

Just because nonresidential land uses have moved to the suburbs does not mean that people are traveling less. Quite often, the suburb in which they live is not the one in which they work (or go to college!). The average American in 1995 averaged 4.3 trips per day totaling 39 miles, up from 2.9 trips and 26 miles per day in 1977. Automobile transportation is so pervasive today that our cities are built with the car in mind, and homes keep spreading outward in low-density development that typifies what we think of as sprawl. The "cost" of commuting has dropped greatly, thanks in part to federal and state government funding for roads. Since 1950, the federal government has built almost 4 million miles of highways, and, as recently as 1998, Congress authorized a six-year, \$173 billion budget to spend on highways.

With more people driving between suburbs than traveling into the city to work, flexibility in transportation becomes crucial. As demonstrated by the streetcar era in Figure 11.2, public or mass **transit** such as buses, subways, and light rail works best in bringing people along densely populated corridors to the CBD. New York and Chicago, two large, densely populated cities whose central areas were constructed in the streetcar era, account for fully half of the mass transit riders in the entire United States. Private automobiles are better suited for anywhere-to-anywhere transportation. In the United States today, private automobiles account for 90 percent of local trips, followed by bicycling and walking (6 percent) and mass transit (4 percent). Transportation and land use changes reinforce each other. Automobile use leads to increasingly decentralized, multinodal metropolitan areas. In turn, the multinodal urban geography makes the use of a car more important than ever because there is no longer a single focal downtown point on which public transportation routes converge.

While the prevalence of automobile transportation permits sprawl to occur, the primary factor driving sprawl is economic. Land is cheaper at the fringes of urban areas, where families can afford larger (and newer!) houses and more land than they could had they purchased property near high-rent areas downtown. Simply put, you can get a better deal the farther out you move. This explains why, around some urban areas, **leapfrog development** occurs well beyond the limits of the current urbanized area (Figure 11.4).

Other factors that encourage low-density, sprawling cities result from ingrained cultural beliefs. Many Americans value individualism, which leads to a preference for stand-alone, single-family homes rather than row houses, communal living, or multifamily structures that are commonly found in other countries. The so-called American dream is a single-family home with a double garage and fenced-in yard on at least one-quarter of an acre of land. Combine this housing preference with the fact that as our society has become increasingly more affluent, our houses have gotten progressively larger (especially since the 1960s). The four-car garage, entertainment room, fourth bathroom, and pool have become standard features in new luxury homes (Figure 11.5).

Well-known policy analyst Anthony Downs identified ten traits associated with sprawl:

1. Unlimited outward extension
2. Low-density development
3. Leapfrog development miles beyond the urban fringe
4. Fragmentation of political powers among many small municipalities
5. Dominance of transportation by private automobiles



Figure 11.4 Leapfrog housing developments isolated from the urbanized area. The contiguous "edge" of the suburbs is several miles behind the point from where the photo was taken.



Figure 11.5 Each dot represents the average size and year of construction of all dwellings in a 0.25-square-mile section of Scottsdale, Arizona, a wealthy suburb of Phoenix. Today's luxury homes are two to four times larger than the average home of the 1950s, which are even smaller than today's average condos.



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6. Lack of centralized planning or control of land uses
7. Commercial strip development
8. Great fiscal disparities among towns and neighborhoods
9. Segregation of types of land uses in different zones
10. Reliance on a trickle-down process to provide low-income housing

Several of these points are merely symptoms of sprawl, but others are causes. For instance, the fragmentation of governmental powers in a metropolitan area is a major issue that contributes to sprawl. Most cities rely heavily on sales taxes from retail and commercial activities. They therefore seek to attract stores that will generate revenue, many of which, such as malls and "big-box" retailers, require large amounts of land. The reliance on sales taxes for income leads cities to compete to attract these businesses rather than cooperating in a regional planning effort that could still serve market demand and use space more efficiently and with fewer negative environmental impacts. This competition, coupled with lack of **metropolitan government** (point 6) and fiscal disparities between cities (point 8), means there is frequently no coordinated effort to meet growth needs and disjointed development that appears haphazard and sometimes dysfunctional.

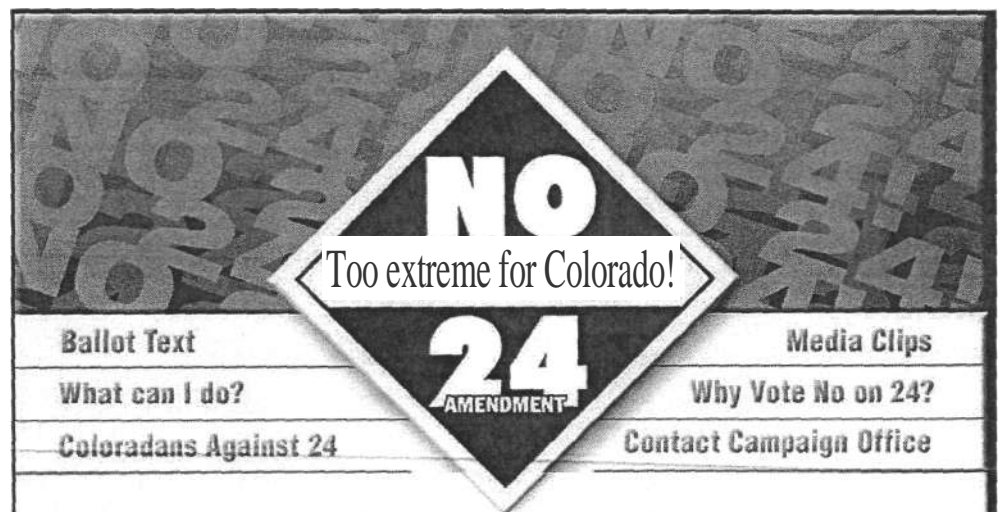
Segregation of land uses also causes sprawl. City planners traditionally use **zoning** to separate incompatible land uses, such as housing and chemical factories. Each and every parcel in a city is zoned for one land use or another. Unfortunately, when residential, commercial, and industrial areas are required by zoning laws to be separated from one another, automobile travel is required in order for people to perform even the most simple errands or commutes. Combine segregated land use with transportation networks that force drivers in entire neighborhoods or shopping areas to exit that place via one or two points (a treelike pattern of roads, whose branches all lead to the same place), and it's not surprising that major chokepoints develop (Figure 11.6). According to the Texas Transportation Institute, the number of urban areas experiencing "unacceptable" **congestion** rose from 10 in 1982 to 39 in 1996 (of 70 that were studied).

Many people believe that sprawl, rather than being a problem, is simply a function of market forces that distribute resources in the most efficient manner. They argue that housing tracts could actually be a better land use than agriculture on what are often marginally productive lands. People buy the types of houses they prefer and shop at stores they like; therefore, one person's sprawl is another person's "American dream." Others, however, counter that people buy not what they want but what is available; they have not been given a good choice of alternatives from which to choose. When shown photographs of urban scenery (called *visual preference surveys*), most people prefer images of neighborhoods and shopping centers that do not reflect the typical models being built today. More important, the "market forces" argument has been challenged by people who claim that market forces do not account for the social value of open space, the societal costs of traffic congestion and air pollution (Figure 11.7), or all public infrastructure and services costs associated with low-density development. A study of Custer County, Colorado, found that for every dollar raised from taxes in low-density "ranchettes," the cost of providing services was \$1.16. Market forces also have failed to adequately provide affordable housing (point 10 in list). Developers make their greatest profit building expensive homes. There is little incentive to produce low-income housing from a strictly profit-making motive.

We have seen many reactions to urban sprawl in the news lately. A judge in Atlanta recently ordered all new highway construction halted until city planners could devise a better plan to deal with air pollution. Voters in Arizona and Colorado had ballot initiatives in 2000 that sought stronger limits on growth in urban areas (both were defeated after being labeled "too extreme," despite concern about sprawl in both states) (Figure 11.8). Voters in Ventura County, California, took the power to approve new subdivisions away from county officials; zoning changes now require voter approval.

While critics of sprawl abound, solutions are more difficult to come by. One popular alternative is called New Urbanism, a movement by architects and planners to build more traditional neighborhoods that foster a sense of community. New Urbanism emphasizes people, not cars. Garages are set back rather than facing the street, so that windows and porches out front act as buffers between private and public space. Front porches encourage greater socialization among neighbors. Medians remain between sidewalks and streets, and the streets themselves are narrowed to slow traffic. Mixed-use developments, a new kind of zoning classification, stresses location of residential and commercial uses in close proximity and at a greater density so people can walk to work, stores, and schools (see point 9). House types are also mixed to promote diversity (see point 10). All of these are seen as ways to promote neighborhood interaction instead of the sense of isolation that is characteristic of much of suburbia.

Austin, Texas, now measures any new commercial development proposals against a series of new urbanist indicators (pedestrian access, mixed use, etc.) to determine whether projects receive government subsidies. Cities around the country encourage people to move back downtown, convert old warehouses to lofts, and fix up his-



Full employment and new Jobs continue to make Colorado the best place in the country to live. But with the good times comes the challenge of managing the growth. Elected officials, planners, foundations, not-for-profit organizations and private citizens are working hard to meet that challenge and they're making progress. All that work could be thrown out the door if a group of extremists get their way and pass Amendment 24. If approved it would bring a catastrophic halt to Colorado's prosperity.

**** - Vote No on 24.**

Figure 11.8 Web site advertisement encouraging a vote against a recent growth-management initiative in Colorado.

toric districts. New Jersey and Maryland have both instituted new codes that encourage preservation of open space and **infill development**—construction of small-scale developments on vacant pockets of land remaining within the city (Figure 11.9).

Portland, Oregon, often is cited as a success story for "smart growth" policies that inhibit sprawl. The city emphasized human interaction over automobiles in its renewal projects in the 1970s. The focal point of the city is now the hugely popular Pioneer Courthouse Square, built in the early 1980s where a parking garage once stood. The also popular riverfront park once was an expressway that cut off the city from the Willamette River. City blocks are small in size, and all buildings have street-level shops (rather than blank walls) that encourage human interaction. In 1980, Portland instituted **growth boundaries** that put fixed limits on urban expansion (see point 1). The result has been increasing density (but also increasing land values and house prices) in the urban downtown, and a very high rate of public transit ridership.

European and Japanese cities are far more compact and densely populated than are American cities, with much higher use of mass transit than even New York, Chicago, and Portland. Apartment living is the norm in central cities, and there is more travel by foot, bicycle, motorbike, and taxi. U.S. tourists often marvel at how lively and cosmopolitan foreign cities are. Of course, vacant land in these countries is far less plentiful and far more expensive than it is in North America, gasoline costs \$3 to \$5 per gallon, and people are used to a high level of government intervention in their lives. Despite these differences, foreign cities also are experiencing a lesser version of sprawl on their urban fringes.

To be successful, antisprawl policies must satisfy many interest groups, or **stakeholders**. Developers need reassurance that investments they make will not be lost to policy or zoning changes prior to project completion. People need to be convinced



Figure 11.9 These multifamily homes in an infill development of Tempe, Arizona reduce outward sprawl and encourage alternate modes of transportation, as the built-in bike racks indicate. The front porches add a New Urbanist touch.

that growth-management policies will not overly restrict their housing type or render it unaffordable. People will always like the freedom of their automobiles, but other transit options should be available. Cities must simultaneously address housing needs while they encourage retail and commercial centers. Above all, planning must be flexible to adapt to many situations.

This chapter asks you to evaluate different **scenarios** for growth in the City of Colorado Springs, Colorado. You will be asked to look at each from the perspective of different stakeholders. You will get a feel for the complexities of planning for growth and the difficulties of pleasing everyone.

CASESWDY

THE DISAPPEARING FRONT RANGE

GOAL

To understand the causes and effects of urban sprawl and proposed solutions to it, to recognize the perspectives of various stakeholder groups, and to see how those perspectives can be incorporated into realistic growth-management scenarios.

LEARNING OUTCOMES

After completing the chapter, you will be able to:

- Assess the relationship between urban growth and transportation technology.
- Articulate the causes of urban sprawl.
- Use GIS layering to visualize the uneven geographic effects of urban sprawl.
- Evaluate the alternative solutions to urban sprawl and recognize the inherent trade-offs among them.
- Advocate a position on urban sprawl.
- Negotiate an acceptable solution to urban sprawl with those who hold a different position.

SPECIAL MATERIALS NEEDED

- Computer with CD drive and Internet Explorer 5.0 or above. See *Read Me*.

BACKGROUND

The Front Range of Colorado is where the Great Plains meet the Rocky Mountains (Figure 11.10). The transition is abrupt, with 14,110-foot Pikes Peak rising from the plains just west of Colorado Springs. This area has been a magnet for people since the gold rush days of the 1860s. Pueblo (on the Arkansas River) and Denver (on the South Platte) were early transportation and supply centers, and many other cities and towns have grown around them. Colorado's population picked up more than 1 million new residents in the 1990s, and its 30 percent growth over the decade was the third-fastest of any state. Denver, the focal point of the growth, was recently listed as one of the most sprawling cities in the United States, and the entire Front Range stretching from Fort Collins in the north to Pueblo in the south has grown rapidly. Colorado Springs, as the second-largest city in the region, is also undergoing rapid expansion.

Colorado Springs was founded in 1871 by General William Jackson Palmer to be a resortlike getaway for wealthy easterners. Palmer used his fortune from the Denver and Rio Grande Railroad to build a town according to his moral beliefs, characterized by many churches and parks and a lack of alcohol sales or taverns. Because of its clean air and abundant sunshine, the city soon became a popular destination for tuberculosis patients as well. While the Cripple Creek gold rush in the 1890s injected

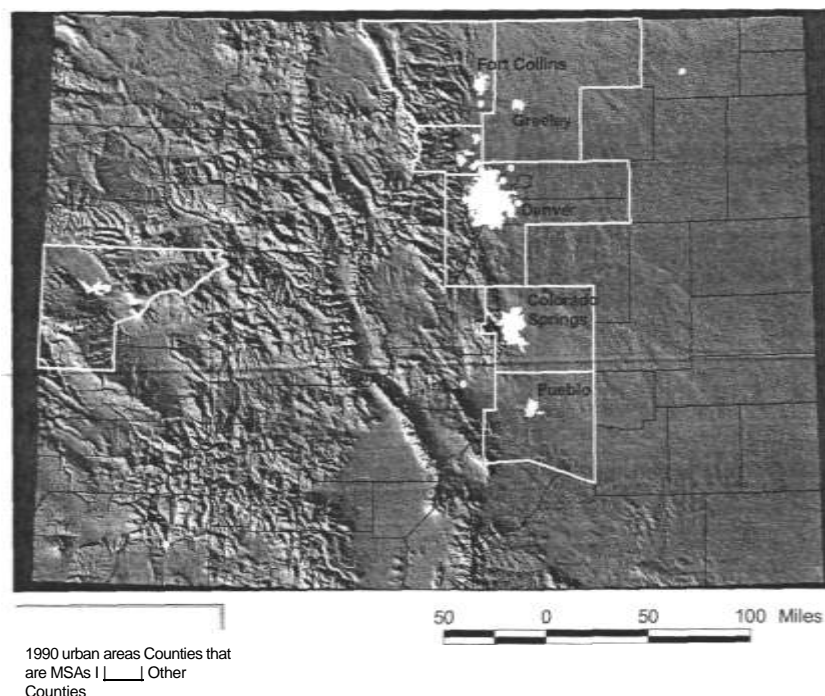


Figure 11.10 Urbanized areas along the Colorado Front Range stretch from Fort Collins to Pueblo.

CASE STUDY (continued)

much wealth and industry into the community, the town remained quite small for many decades, relying on tourists who came to visit Pikes Peak, Garden of the Gods, and other nearby natural attractions. Beginning with World War II, military institutions formed a key part of the city's economic base. Fort Carson Army Post and what later became Peterson Air Force Base were founded during the war, and shortly after it, the United States Air Force Academy, the North American Air Defense Command (NORAD), and Schriever Air Force Base also located in the region. Today the economy has diversified greatly, with numerous high-tech companies (Intel, Oracle, and MCI, among others) locating in this city known as a hub of silicon chip manufacturing plants.

Coloradans increasingly have become concerned with rapid growth. Numerous surveys identify urban sprawl as the number-one public concern, largely from fear of losing the quality of life that attracted people to the region to begin with: clean air, easy access to the mountains, and excellent outdoor opportunities.

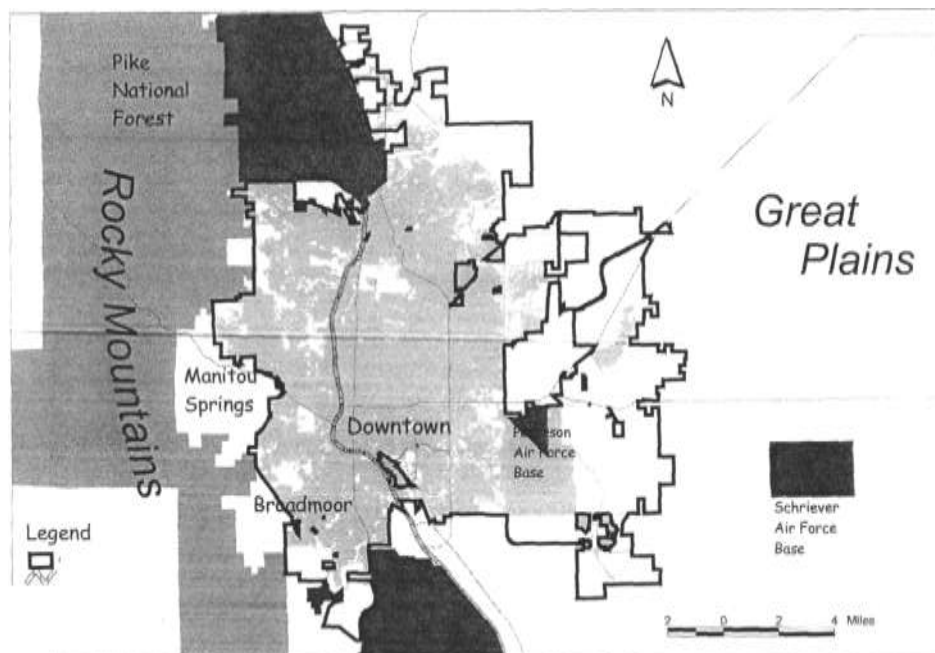
The Colorado Springs Metropolitan Statistical Area (MSA) is expected to grow from about 507,000 people in the year 2000 to about 680,000 in 2020, an increase of around 33 percent. This translates into 70,000 to 75,000 new households. The bulk of these 173,000 new people will live within the city itself. Because growth is constrained to the west by the Rocky Mountains, to the south by Fort Carson Army Post and a new Cheyenne Mountain State Park, and to the north by the U.S. Air Force Academy, most

growth will occur on the eastern plains (Figure 11.11). Currently, 40 percent of the Colorado Springs land is undeveloped, so planning for the future is essential. However, some of the remaining land has been highlighted by the city planners as **ecologically sensitive space**: fragile, rare, or valuable natural areas that are good candidates for preservation as parks, wilderness, or open space.

Colorado Springs' planners evaluate different **scenarios** or alternative ways in which the city could grow. Planners look at scenarios to decide which works best and then make suggestions to City Council, which in turn implements policies that encourage growth to follow the optimal pattern. Part of the problem is that what is "best" for one person or group is not "best" for another. For instance, a young family that wants room to grow could want the largest house it can afford in a new suburban tract at the farthest areas from the city. Environmentalists could decry this choice as contributing to increased traffic and air pollution and loss of precious open space and native prairie. A person with mobility restrictions (teenager, elderly, disabled) could favor tightly 'knit urban housing with nearby stores and entertainment that are easily accessible without the use of a car, whereas other people could lament the loss of privacy that accompanies living in a dense urban neighborhood.

One urban model will never fit all Americans. Geographers and planners refer to these types of situations as **trade-offs**, in which one objective must be sacrificed to achieve progress on another. Citizens must suffer more

Figure 11.11 Colorado Springs reference



CASE STUDY (continued)

air pollution if they want cheaper housing or suffer higher housing prices if they want cleaner air. Solutions that do not require trade-offs are known as **win-win solutions**. Zero-emission vehicles, for instance, could enable people to enjoy both cleaner air and cheap suburban housing. However, one needs to think clearly and comprehensively about these decisions: Even clean cars would not solve sprawls effects on open space or traffic congestion on highways.

In the activities in this chapter, you will evaluate five different possible growth scenarios for Colorado Springs from the perspective of several different stakeholder groups. Your instructor will determine which stakeholder groups you will represent. The five growth scenarios are guidelines to where the new developments of the city will be in 2020. They are all based on an increase of 72,000 housing units between 2000 and 2020.

Eastern Beltway

This growth scenario clusters development around what is anticipated to be a new interstate bypass to the east of the central city (shown on the GIS maps you will view on the CD). On the eastern edge of the currently developed areas, the Powers Boulevard area is already experiencing rapid growth. When this becomes a major transportation corridor with connections to Interstate 25 on the north and south, commercial and industrial businesses are expected to favor locations nearby. Housing will also cluster along this corridor to take advantage of accessibility to transportation.

Urban Villages

The **urban village** concept is loosely based on the principles of New Urbanism so that mixed-use development of homes, shops, entertainment, and work are nearby. Although Colorado Springs' Urban Village growth scenario does not specify microscale urban design elements indicative of new urbanist development, the idea is to concentrate new housing around several commercial and office nodes. Planners picked several retail and employment focal points, mostly in new-growth areas in the suburbs (shown by stars on the CD map), and proposed that medium- to high-density housing be clustered around these centers. The hope is that commuting to work by private automobiles can be minimized and "communities" will grow around these nodes.

Leapfrog

This scenario takes advantage of the most distant and least-developed land within the city limits to plan an entire new community. It is known as **leapfrog development** because it jumps over available land on the urban fringe. Proponents cite the affordability of land, the vast tracts available, and the lack of constraints for planning new

neighborhoods and transportation routes. It is usually cheaper *per mile* to build new residential streets and sewer lines in these empty areas than in areas that are already partially developed, but that includes only the costs within the development itself. Because of a leapfrog development increased distance from existing public services such as emergency medical response, police and fire protection, and sewage treatment plants, either expensive connections must be built and maintained or new facilities must be built there. As a result, the *total* cost of public **infrastructure** is usually more expensive for leapfrog development. Leapfrog development would make possible larger homes in a new suburban setting, far from what many perceive as the social and environmental "problems" associated with inner cities, but it would encroach much farther into the rural areas, make open space less accessible to all, and add greatly to the city's total vehicle-miles traveled.

Northeast-Southeast Extensions

This scenario channelizes growth into two corridors that extend from the already developed areas. Compared with the leapfrog scenario, it focuses growth by keeping new areas contiguous with the already developed land. This scenario also has the benefit of serving two distinct markets: The northeast features more expensive housing serving a wealthier clientele, and the southeast has a larger contingent of smaller and more affordable housing for low- and middle-income citizens. Transportation needs can be better served with channelized growth such as this if major arteries are built into these sectors.

Infill

The final scenario is known as **infill** because it "fills in" most existing developable space in the city before new growth occurs on the periphery. The result would be a denser inner city that minimizes the spatial extent of developed land into the rural plains. Proponents cite increased energy efficiency with housing types such as multifamily homes and shorter commute distances. With amenities located closer, the need to use automobiles should decrease, and the population base for efficient public transportation should increase. Opponents decry the lack of private space (indoors and outdoors) associated with small lots or multifamily housing. They also cite the huge expense required to upgrade existing roads if the travel load is increased in older neighborhoods. The main policy instrument used to achieve the infill strategy is a **growth boundary**: literally, a line drawn on the map outside of which conversion of rural to urban land is prohibited. If such a line were drawn without including much available land, housing values would rapidly increase inside the boundary.

In Activity 1 of this chapter, you will first view an animated map showing the spread of the Colorado Springs urbanized area over time and assess the role of

CASE STUDY (continued)

transportation networks and technology in shaping that growth, as idealized in Figure 11.2.

In Activity 2, you will prepare for the upcoming debate by using the map overlays to help you determine which scenario is most beneficial for various societal objectives. You won't yet be assigned to a stakeholder group, but you should begin thinking about whether criteria such as ecologically sensitive space, transit, or traffic congestion are important only to certain groups or to the overall city and community.

Finally, in Activity 3, you will be assigned to one of the stakeholder groups, and you will have to make a case for which growth scenario your group favors. After presenting your position statement to the class, your group will be divided among several citizens' working groups composed of members from each stakeholder group. The citizens' working groups will be charged with reaching a consensus on which scenario to recommend to the City Council.