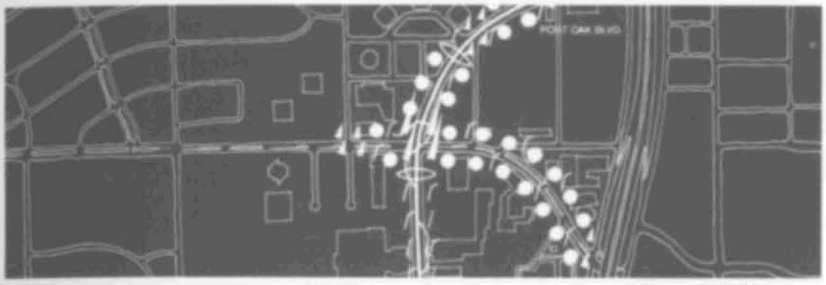
Planning for a New Century



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Part 3: Education, Safety, and Welfare

Part 4: Restoring Older Urban Areas

Chapter 11

Restoring Natural Resources and Rebuilding Urban Communities

Anne Whiston Spirn

Social, economic, and environmental issues have long been regarded as separate concerns, but they are closely related. Treating them separately leads to unanticipated consequences, costly mistakes, and unrealized opportunities. The neglect of environmental considerations in cities and their separation from issues such as unemployment and community development is one example. Another is the failure to see disinvestment in inner cities, and rural environments and natural resources destroyed by new residential development as part of the same problem, with related social, economic, and environmental repercussions.

Some of the most challenging issues facing the United States today are the result of well-intentioned policies, which had far-reaching, unanticipated consequences besides their desired effect. Federal housing and highway policies are an example. Public funds are squandered when programs are conceived as single-purpose solutions to narrowly defined problems. Such programs often address symptoms rather than causes, and they produce new problems, which may cause social and economic distress and lead to environmental disaster.

The problems facing contemporary cities seem to dwarf the resources available to address them effectively. Social and economic issues, on the one hand, and environmental and aesthetic issues, on the other, compete for attention and scarce funds. Given limited resources, we can no longer afford to address these issues separately. Single-purpose solutions to narrowly defined problems are wasteful of resources and cause unanticipated consequences. We must define multipurpose solutions to comprehensively defined problems. We must seek common solutions to social, economic, and environmental problems.

Buried Floodplains and Vacant Land in Older Urban Neighborhoods

Cities are not separate from the natural world, and they should be developed with an understanding of natural processes, not just social and economic forces. Every region has an underlying landscape structure, which poses constraints and affords opportunities for human settlement. Terrain can be bulldozed and streams diverted at great cost, the natural forces at work can be masked and natural features covered up, but it is much less costly in the long run to work with these forces instead of against them.

In many inner city neighborhoods, vacant land is concentrated in valley bottoms on buried floodplains (Figure 11.1). Water flowing underground, flooding basements and undermining foundations, is a significant cause of abandonment, in addition to political processes like redlining and socioeconomic processes like population migration. That these floodplains were ever developed at all was the result of poor planning and development practices in the nineteenth and early twentieth centuries.

I first became aware of this correlation between buried floodplains and vacant land in 1984, while studying the Dudley Street neighborhood of Boston. I had been told that 30 percent of the land was vacant, and expected to find the vacancy evenly distributed. But when I visited the neighborhood, I discovered that large areas were mostly intact; the hilltops and hillsides had few vacant lots; it was the valley bottoms that were almost completely open. Old maps of the neighborhood showed that a stream had once flowed through the valley, forming the boundary between Dorchester and Roxbury, explaining why a local street was called Brook Street. I traced the successive settlement and abandonment of the neighborhood by

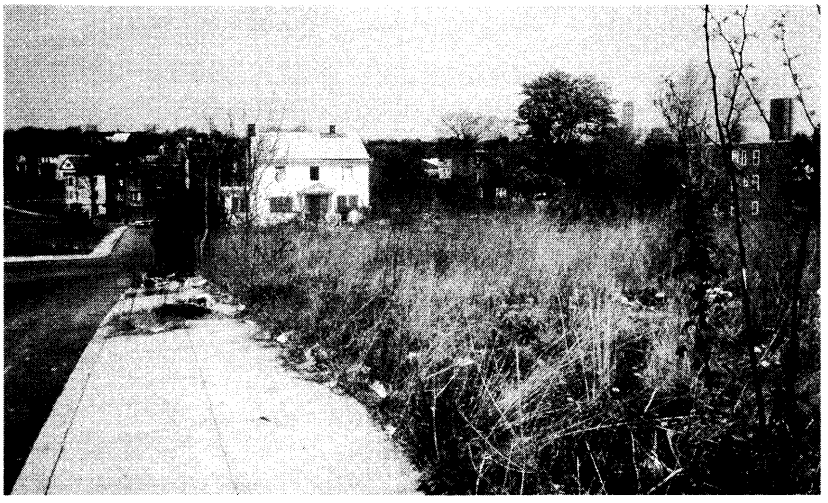

Figure 11.1. Vacant land in the Dudley Street neighborhood was concentrated on buried floodplains in the 1980s. (© Anne Whiston Spirn)

comparing old atlases from 1876 to 1886, 1892, 1903, 1910, 1922, 1934, 1948, 1964, up to the present and found that hill tops and upper slopes had been built on first. Floodplain and stream had been filled in and developed last, and this was where the rental housing had been constructed, with three to six apartments per building. Some of these buildings were abandoned as early as 1910; by 1964 whole areas on the bottomlands were vacant. In the 1970s many buildings owned by absentee landlords burned down, some accidentally, others perhaps deliberately so that owners could collect fire insurance, and by 1985 even more land was vacant. Local people believed the cause was arson; they did not see the probable connection to poor drainage and subsidence on the buried floodplain.

Similar conditions exist in many U.S. cities. The Mill Creek neighborhood in West Philadelphia, where I have worked for the past fourteen years, is a good example. There is a broad, meandering band of land, much of it vacant, where the remaining buildings show signs of subsidence and deterioration. This area winds through the community along the course of an old stream, the original Mill Creek, for which the neighborhood is named. In the late nineteenth century, the stream was put into a sewer, the floodplain was filled in, and buildings were built on top. There is a history of cave-ins of buildings constructed over and adjacent to the sewer, begin-

ning in the 1930s. Following one cave-in in 1961, the city tore down 110 homes.

Public housing projects of the 1950s, 1960s, and 1970s were sometimes built on buried floodplains like those in the Dudley Street and Mill Creek neighborhoods. Mill Creek Public Housing, designed by noted architect Louis I. Kahn, is now in poor condition. Rebuilding houses in these places may simply repeat a cycle of deterioration and destruction when planners ignore the hydrological reasons for building-deterioration and abandonment or when they are overconfident of conventional engineering solutions. Current redevelopment programs, such as the Department of Housing and Urban Development's HOPE VI program, may blindly repeat the mistakes of the past if they merely replace Modernist superblocks, towers, and townhouses in inner city neighborhoods with traditional patterns of grid, house, and porch, without understanding all the underlying causes of abandonment.

In 1985, a local community development corporation in Boston's Dudley Street neighborhood proposed to build dozens of new houses on vacant land, including sites in the bottomland. The story had a happy ending. The architects and planners working on the project were invited to review my students' work, and we had a series of discussions. Ultimately, they adapted a design that one of my students had drawn, which used the low-lying land to create a town common. The new houses are built on higher ground around it (Figure 11.2).

Combined Sewer Overflows Are the Legacy of Bad Development Practices

Burying streams like the brook in Boston's Dudley neighborhood and Philadelphia's Mill Creek, and turning them into pipes that carry stormwater and sewage, created another problem besides subsidence: combined sewer overflows or CSOs. If you drive along the Schuylkill River in Philadelphia after a heavy rainstorm, you may notice that the color of the river turns quite brown and that there is a glaze on the surface, like a lagoon in a sewage treatment plant. After a major rain storm so much stormwater comes off the streets and flows into the sewer—along with all the sanitary sewage from homes and businesses—that there is too much volume for the sewage treatment plant to handle. So some sewage overflows directly into

Figure 11.2. These award-winning new houses for low- to moderate-income families were built on previously vacant land, and a new town common was sited on the bottomland. (© Anne Whiston Spirn)

the river. This is a major problem in Philadelphia and in many other cities like Boston, New York, and Baltimore that were built when it was standard practice for sanitary and storm sewers to be combined.

Federal water quality programs in the 1970s supported the separation of sanitary and storm sewers, and, in many cities, combined sewers were separated, so that stormwater flows straight into rivers without overloading treatment plants. Then scientists discovered that this change did not improve the quality of river water as much as they had expected, because urban stormwater is polluted. It picks up heavy metals and other kinds of dirt and grit from streets. Urban stormwater also contains relatively high counts for fecal bacteria from the feces of all the animals, mainly pets, that live in the cities.

The Environmental Protection Agency is very concerned about the contribution of CSOs and untreated stormwater outfalls to poor water quality in rivers, especially those that are a source of drinking water. The current wisdom is that one should probably treat stormwater runoff as well as sanitary sewage. It becomes an advantage to have a combined system because, if you can manage the treatment, rivers and lakes will be cleaner. The problem, then, is how to deal with massive quantities of sewage that

need to be treated right after a rain storm? One solution is to build enormous new sewage treatment plants, and some cities, like Boston, have done that.

Restoring Water Quality and Rebuilding Inner City Neighborhoods

Another way to prevent CSOs would be to detain stormwater on the surface of the ground in order to slow down the time that it takes for stormwater to get into the sewer. The sewage treatment plant would then be able to handle all of the combined sanitary and storm water and there wouldn't be sewage overflows caused by stormwater overloads. A city could build many urban greenways for the cost of a conventional sewage treatment plant and still employ engineers and construction crews, just in a different way. But is such a policy feasible? The Denver Urban Storm Drainage and Flood Control District, created in response to a series of disastrous floods, is a model for how stormwater management might be accomplished in every city.

Natural systems retain stormwater in soil, plants, and streams; rivers overflow onto floodplains, which, if not built upon, protect adjacent areas from flooding. As Denver grew, the ground became covered by more and more buildings and pavement, and it was less able to soak up rainfall, so stormwater flowed more and more rapidly through the watershed into the South Platte River. Buildings and pavement were also built in the floodplains along creeks and rivers. Denver has a semiarid climate, but it sometimes gets torrential rains. In June, when snow is melting in the Rocky Mountains and stream flow is high, such rains can produce devastating floods. In the 1960s, one flood wiped out all the city's bridges and convinced everyone it was time to do something.

Since the 1960s, Denver and surrounding communities have built a network of greenways along the South Platte River and its many tributaries and drainage channels. These are both public open space and part of the region's stormwater and flood control system (Figure 11.3). The stormwater channels look like little streams with berms on either side to keep the water from flooding streets and houses. At Harvard Gulch, for example, the greenway overflows onto a golf course designed to flood if the water rises too high. This system slows down stormwater runoff; instead of

Figure 11.3. Harvard Gulch combines recreation and flood control. It is part of a network of greenways built for storm drainage and flood control along the South Platte River and its many tributaries and drainage channels. (© Anne Whiston Spirn)

reaching the South Platte within a few hours or a day following a rainfall, it takes several days or more to reach the river. By then, floodwaters in the river are receding. The stormwater system is a series of parks that are assets to the neighborhoods around them. The design, maintenance, and construction of these greenways are paid for by the Denver Urban Storm Drainage and Flood Control District, not by a park department budget. Property owners pay a fee based on how much stormwater runoff they contribute to the overall hydrological system. Attending to natural processes in urban planning and design and community development creates opportunities, it is not just a matter of avoiding hazards or problems.

Buried floodplains in urban neighborhoods should be recognized as an important structural part of the landscape, a special zone where new buildings should not be built. An acquisition strategy should address what happens to the buildings that remain in the floodplain. Many of these are plagued with flooded basements, subsidence, and other structural and health issues associated with chronic water problems. Turning these areas into useful open land, whether parks or community gardens, or even parking lots or commercial uses if they are properly designed, would raise the value of the buildings that remain. A landscape infrastructure designed to

detain and filter stormwater, thus preventing floods and combined sewer overflows downstream and contributing to improvements in regional water quality, could also improve living conditions in inner city neighborhoods.

I first proposed such an idea in 1985 for Boston, then again in 1988 for Philadelphia's Mill Creek neighborhood as part of the West Philadelphia Landscape Project. Each year since 1996, students in my landscape architecture studio at the University of Pennsylvania have designed wetlands, water gardens, and outdoor classrooms on vacant land in the Mill Creek neighborhood, which would also function as stormwater detention facilities. We have worked with teachers and students at a local middle school to design and implement an urban watershed curriculum. And we have presented these ideas to the Philadelphia Water Department. In 2000, the Philadelphia Water Department submitted a grant proposal to the Commonwealth of Pennsylvania for funds to plan, design, and build a demonstration project on vacant land near Sulzberger Middle School, which will combine a stormwater detention facility to reduce CSOs and an environmental study area for the school. The project will be designed by stormwater engineers, teachers, and students at the middle school, my students, and myself.

Planning, design, and especially the financing of new or reconstructed infrastructure (sewer, water, transportation, power, and communications systems) are among the most effective means of influencing where and how urban growth happens, of protecting and restoring natural resources, and of rebuilding older urban neighborhoods. This work affords great opportunities for education and employment and the creation of new urban amenities, but without managing metropolitan growth, it will not halt or reverse the current migration from older cities to new cities at the edge of metropolitan regions and its social, economic, and environmental consequences.

Inseparable Challenges: Rebuilding Inner City Communities and Reducing Suburban Sprawl

A whole new urban infrastructure is being built on farmlands and forests at the edges of U.S. metropolitan areas: streets, sewers, water and utility lines all facilitated by federal policies and subsidized by public funds. Meanwhile, existing infrastructure in inner city neighborhoods is wasted

as homes are abandoned and demolished. Those who protest environmental degradation at the metropolitan edge and those who decry the destruction of inner city neighborhoods share a common cause. Construction of new exurban communities and disinvestment in older cities over the past several decades have destroyed environmental resources at the same time that they have increasingly segregated American society by income and race.

We cannot rebuild inner city communities and sustain the vitality of American cities without addressing the growth of metropolitan regions. We cannot reduce effectively the development pressure at the edge of metropolitan regions, which leads to loss of forest and agricultural land and degradation of streams and rivers, without addressing the decline in urban populations and the quality of urban environments. Only when environmentalists, urbanists, and those concerned about inner cities finally realize that they should work together will we make real progress on both fronts.

There may be a demand for new homes in exurban areas, but is there a need? Consider the familiar scene at the edge of Philadelphia, at the edge of Washington, D.C., Baltimore, Atlanta, Houston, Dallas, Denver, and so many other U.S. cities, of new sewers, streets, and houses being constructed in rural landscapes. While six suburban counties around Philadelphia grew by as much as 12 percent in the 1990s, Philadelphia lost 9 percent of its population during the same period, more than any other U.S. city. Even in metropolitan areas that are growing rapidly, the amount of development taking place at the edge is far greater than is justified by the rate of overall growth. Where are the people going to come from to buy and live in these houses? Since nationally there is no housing shortage, each new house means that an old one is abandoned somewhere else, in slow-growing regions probably in the same metropolitan area.

Some of the richest agricultural soil in the United States now lies, irretrievable, under houses, streets, and parking lots, and many more acres will be built on soon. The area between Los Angeles and San Diego is one of the fastest-growing districts in the country. Agricultural land in Orange County, California, is now used for strawberry fields, as a holding pattern prior to development (Figure 11.4). The strawberry plants cover the land and the harvest provides income to help defray the property taxes in this rapidly developing area. Much of what is being built today in Orange County is mixed use at high densities. This type of development presum-

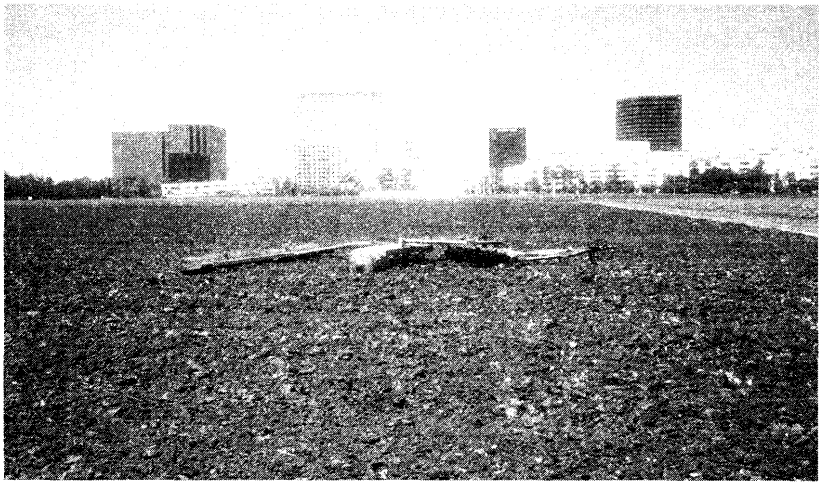

Figure 11.4. These agricultural fields in Orange County, California, are a temporary land use. (© Anne Whiston Spirn)

ably pleases the new urbanists, who say that we ought to build places that are denser and use less land, thereby conserving energy. But the real issues are how much needs to be built and what is being done both to the country's natural resources and to existing cities by continuing to build on farms, forests, grasslands, and deserts in exurban areas?

Inner city neighborhoods of Detroit, built in the age of the automobile, always looked suburban because they were composed of free-standing homes laid out in a dispersed settlement pattern. Drive through these neighborhoods today, and you feel like you are out in the countryside: So many houses have been abandoned and demolished that those remaining are separated by open fields. But there are still sewers under the streets, there are water lines, gas lines, and electrical lines, there is a whole infrastructure in these neighborhoods, built to support a much larger population. Profits were made, developers moved on, neighborhoods have been abandoned, but the infrastructure is still there. Infrastructure lies fallow in many other cities across the country. Yet new streets, sewers, water, and power lines are being put in place, laboriously and expensively, with public subsidy, to support development on agricultural land at the edges of metropolitan areas.

What happens to the people who remain behind in existing urban neighborhoods? In 1997, the *Philadelphia Inquirer* published a story

about the Rhawnhurst neighborhood in Northeast Philadelphia, which was built primarily since the 1950s. It is made up of relatively modest, suburban-style homes and rowhouses. The houses are in good condition; trees and shrubs have matured; it is a pleasant place, its population ethnically and racially diverse. Astonishingly, 68 percent of the homeowners are over 55, although this is a lower proportion than other neighborhoods in a city where 52 percent of the houses are owned by people over the age of 60. Homeowners interviewed about their plans for the future were very concerned about whether or not they will be able to sell their homes when they want to move or can no longer live on their own. In ten or fifteen years, when they put their houses on the market, what will happen? Will these perfectly sound houses go the way of earlier abandoned properties in older neighborhoods?

In addition to the social costs, think about the natural resources wasted when solid houses are abandoned and destroyed. Consider what it takes to build a new house: the trees for the lumber, the metal for nails, pipes, and so on, plus the energy it takes to manufacture and transport the building materials. Avoiding unnecessary building is another aspect of energy conservation and natural resource protection.

We should eliminate public policies that subsidize the construction and ownership of new homes in new communities when we have so many homes that are already built. Federal policies should not continue to subsidize the construction of new sewers, streets, and water and power lines in exurban areas when we have so much infrastructure already built, now underutilized because so many people have moved out of existing cities. Federal subsidies for new residential construction were introduced in the 1930s to create jobs and get people back to work, for the building trades represented a large proportion of the unemployed during the Depression. Subsidies were expanded after World War II, augmented by the federal highway program and mortgages for veterans that favored the purchase of new homes rather than older ones. These programs had many benefits, but they also had devastating, unforeseen social, economic, and environmental consequences. Together with private investment, such as large-scale residential development, and banking practices, such as redlining, they reshaped the American rural and urban landscape, destroying farmland, forests, and urban communities. New public policy could reverse these effects and reshape the landscape once again.

Recommendations

1. In rebuilding urban communities, seek common solutions to social, economic, and environmental problems.

In coming years, cities will spend billions of dollars to reduce combined sewer overflows, which are caused by stormwater overloading the system. Paying for corrective measures is necessary to meet water-quality standards for rivers, lakes, and harbors. This expenditure could also be an extraordinary opportunity to make major improvements in older urban neighborhoods—if policymakers can look beyond traditional engineering solutions.

2. Stop subsidizing exurban growth.

The U.S. government should stop all federal subsidies, direct and indirect, for the construction of new urban infrastructure and new homes outside existing urban areas. This policy would be analogous to those of the several states that have growth management or Smart Growth legislation (see Chapter 3) If there is demand for exurban development, let the market bear the full cost.

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