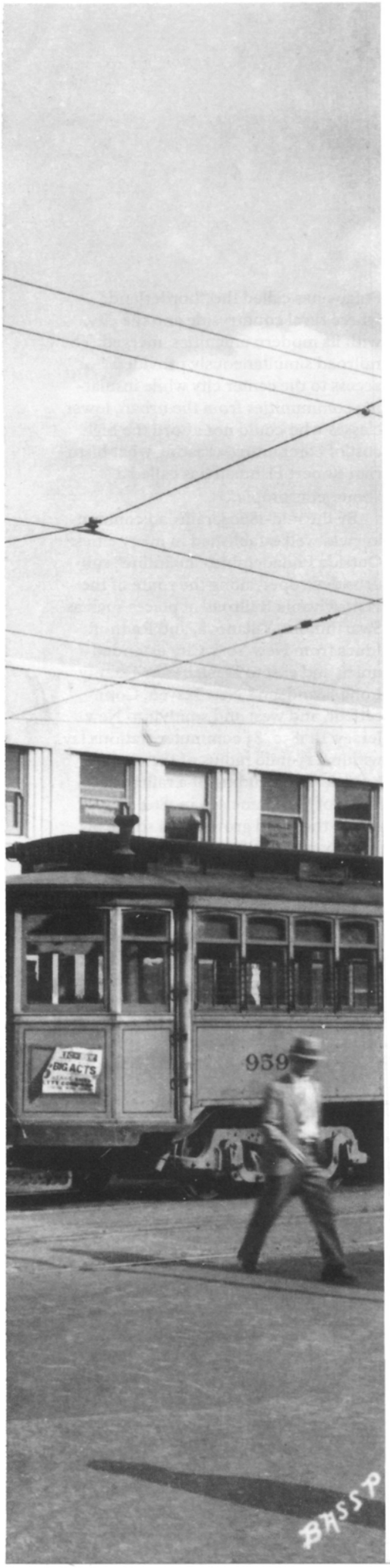
An Overview of Suburbanization in the United States, 1830 to 1960



Historic view (c. 1935) of suburban streetcar and corner drug store, Indianapolis. *As the introduction of the electric streetcar spurred the expansion of metropolitan areas across the Nation after 1887, commercial centers emerged at nodes along streetcar lines. The streetcar continued to shape the daily life of commuters and their families well into the twentieth century, eventually to be displaced by automobiles, buses, and motorcycles, which offered greater speed and mobility. (Photo by Bass Photo Company, courtesy William Henry Smith Memorial Library, Indiana Historical Society)*

TRANSPORTATION

The evolution of American suburbs from 1830 to 1960 can be divided into four stages, each corresponding to a particular chronological period and named for the mode of transportation which predominated at the time and fostered the outward growth of the city and the development of residential neighborhoods:

1. Railroad and Horsecar Suburbs, 1830 to 1890;
2. Streetcar Suburbs, 1888 to 1928;
3. Early Automobile Suburbs, 1908 to 1945;
4. Post-World War II and Early Freeway Suburbs, 1945 to 1960.

The chronological periods listed above should be viewed as a general organizing framework, rather than a fixed set of dates, thereby allowing for overlapping trends, regional influences, and variations in local economic or social conditions. Within each period, a distinctive type of residential suburb emerged as a result of the transportation system that served it, advances in community planning and building practices, and popular trends in design.

The following overview examines the major national trends that shaped America's suburbs, including the development of urban and metropolitan transportation systems, the evolution of building and planning practices, a national system of home financing, the design of the residential subdivision, and trends in the design of the American home.

In 1890 at the urging of real estate developers, *the Burlington and Quincy Railroad built an attractive and comfortable suburban station at Berwyn, Illinois, nine and one-half miles west of downtown Chicago. (Photo by Charles Hasbrouck, courtesy Illinois Historic Preservation Agency)*

Trends in Urban and Metropolitan Transportation

The laying out of new transportation routes, using new technologies, spurred the outward movement of suburban development. New circulation patterns formed the skeleton around which new land uses and suburbs became organized. Farmland near the city was acquired, planned, and developed into residential subdivisions of varying sizes. Separate from the city, new subdivisions were designed as residential landscapes, combining the open space, fresh air, and greenery of the country with an efficient arrangement of houses.

Railroad and Horsecar Suburbs, 1830 to 1890

With the introduction of the Tom Thumb locomotive in 1830, the Baltimore and Ohio Railroad became the first steam-powered railroad to operate in the United States. Soon after, railroad lines rapidly expanded westward from major northeastern cities, making possible the long-distance transportation of raw materials and manufactured goods. On the eve of the Civil War, an extensive network of railroads existed in the eastern half of the United States, connecting major cities as far west as Chicago.

Seeking new sources of revenue, railroad companies started to build passenger stations along their routes connecting cities with outlying rural villages. These stations became the focal points of villages that developed in nodes along the railroad lines radiating outward from cities. Land development companies formed with the purpose of laying out attractive, semi-rural residential communities.

Railroad suburbs offered the upper and upper-middle classes an escape from the city to what historian John Stilgoe has called the "borderland," where rural countryside and the city, with its modern amenities, merged. The railroad simultaneously provided access to the center city while insulating communities from the urban, lower classes who could not afford the high cost of commuting, creating what historian Robert Fishman has called a "bourgeois utopia."[5]

By the mid-1860s, railroad commuting was well established in many cities. Outside Philadelphia, "mainline" suburbs developed along the route of the Pennsylvania Railroad at places such as Swarthmore, Villanova, and Radnor. Lines from New York City extended north and east to Westchester County, Long Island, and New Haven, Connecticut, and west and south into New Jersey. In 1850, 83 commuter stations lay within a 15-mile radius of the city of Boston. The building of a railroad south of San Francisco in 1864 stimulated the rapid growth of a string of suburban towns from Burlingame to Atherton.[6]

Outside Chicago, which rapidly developed during the railroad era, extensive new suburbs took form in places such as Aurora, Englewood, Evanston, Highland Park, Hinsdale, Hyde Park, Kenwood, Lake Forest, Wilmette, and Winnetka. Eleven separate railroad lines operated in the city between 1847 and 1861, and by 1873 railroad service extended outward to more than 100 communities. The most famous was Riverside, a Picturesque planned suburb west of the city, developed by Emery E. Childs of the Riverside Improvement Company. Designed in 1869 by Olmsted, Vaux, and Company, Riverside would become a highly emulated model of suburban design well into the twentieth century.[7]

Revolutionizing cross-city travel in the 1830s, horse-drawn cars provided the first mass transit systems by offering regularly scheduled operations along a fixed route. Due to the introduction of the horse-drawn omnibus and later the

more efficient horse-drawn streetcar that operated on rails, the perimeters of many cities began to expand in the 1850s. By 1860, horsecar systems operated in New York, Baltimore, Philadelphia, Pittsburgh, Chicago, Cincinnati, Montreal, and Boston.[8]

Horse-drawn cars increased the distance one could commute in one-half hour from two to three miles, thereby extending the distance between the center city and land desirable for residential development from 13 to almost 30 square miles. Horsecar tracks followed the main roads radiating out from the center city toward the emerging railroad suburbs on the periphery. Transportation began to influence the geography of social and economic class, as the cost of traveling between home and work determined where different groups settled. The middle and working classes settled in neighborhoods closer to the central city accessible by horse-drawn cars, while those with higher incomes settled in the railroad suburbs.[9]

Following the precedent of Central Park in New York City in 1858, large, publicly-funded, naturalistic parks began to appear in many of America's rapidly industrializing cities. Aimed at improving the quality of life, they offered city dwellers the refreshing experience of open space, natural scenery, and outdoor recreation. In cities such as Buffalo, Brooklyn, Boston, and Louisville, the desire to connect parks with the central city and each other resulted in the creation of parkways and boulevards that were essentially extensions of park carriage roads. Characterized as wide, tree lined roadways often running alongside natural brooks and streams, these roads quickly became desirable corridors along which new neighborhoods and suburban estates were built for those wealthy enough to travel by horse and carriage.

Streetcar Suburbs, 1888 to 1928

The introduction of the first electric-powered streetcar system in Richmond, Virginia, in 1887 by Frank J. Sprague ushered in a new period of suburbanization. The electric streetcar, or trolley,

Figure 1.

Milestones in Urban and Metropolitan Transportation

1830	Baltimore and Ohio Railroad introduces the steam locomotive in America.
1868-92	Parkways designed by Olmsted firm for Brooklyn, Buffalo, Boston, and Louisville.
1887	Electric streetcar introduced by Frank J. Sprague in Richmond, Virginia.
1893-1915	Kessler Brothers design park and boulevard system for Kansas City.
1902	*Improvement of Towns and Cities* by Charles Mulford Robinson calls for civic improvements such as roads, site planning, playgrounds and parks, street plantings, paving, lighting, and sanitation.
1908	Introduction of the Model-T automobile by Henry Ford.
1911	*The Width and Arrangement of Streets* by Charles Mulford Robinson is published, later republished as *City Planning* (1916).
1916	Federal Aid Highway Act (42 U.S. Stat. 212), commonly called the "Good Roads Act," establishes Bureau of Public Roads and authorizes Federal funding of 50 percent of State road projects within a Federal aid highway network.
1916-24	Construction of Bronx River Parkway, New York.
1923	Detroit Rapid Transit Commission announces comprehensive system of mass transit including a centralized subway.
1928-29	Radburn developed as the "Town for the Motor Age."
1938	Bureau of Public Roads report, *Toll Roads and Free Roads,* calls for a master plan for highway development, a series of upgraded interregional roads, and the construction of express highways into and through cities to relieve urban traffic congestion.
1939	New York World's Fair "Futurama" presents designer Norman Bel Geddes's vision for a national highway system and the modern city of the motor age.
1940	Arroyo Seco Freeway opens in Pasadena; first modern, high-speed turnpike opens in Pennsylvania.
1944	Federal Aid Highway Act calls for a limited system of national highways and a National System of Interstate Defense Highways; Interregional Highway Committee recommends creation of a 32,000-mile national network of express highways, now known as the Eisenhower Interstate System.

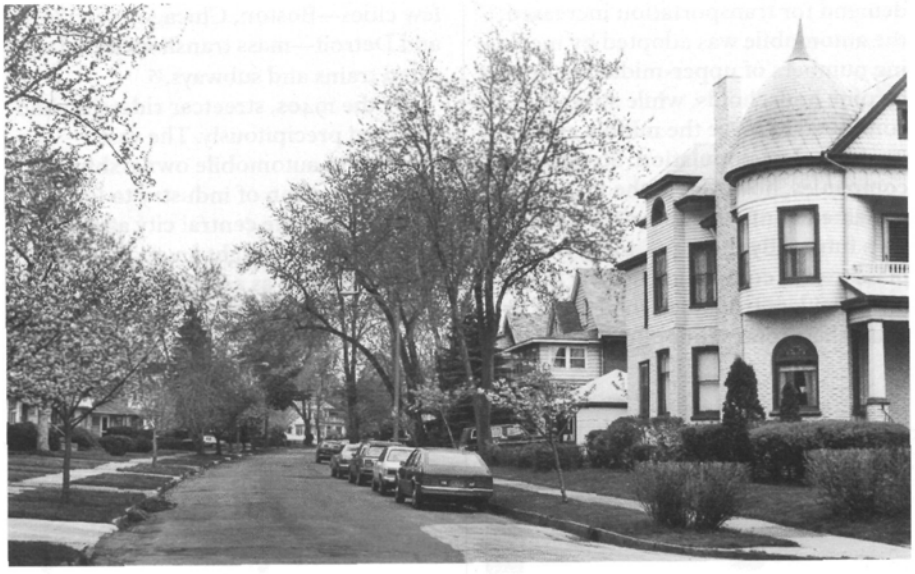
allowed people to travel in 10 minutes as far they could walk in 30 minutes. It was quickly adopted in cities from Boston to Los Angeles. By 1902, 22,000 miles of streetcar tracks served American cities; from 1890 to 1907, this distance increased from 5,783 to 34,404 miles.[10]

By 1890, streetcar lines began to foster a tremendous expansion of suburban growth in cities of all sizes. In older cities, electric streetcars quickly replaced horse-drawn cars, making it possible to extend transportation lines outward and greatly expanding the availability of land for residential development. Growth occurred first in outlying rural villages that were now interconnected by streetcar lines, and, second, along the new residential corridors created along the streetcar routes.

In cities of the Midwest and West, such as Indianapolis and Des Moines, streetcar lines formed the skeleton of the emerging metropolis and influenced the initial pattern of suburban development.[11]

Socioeconomically, streetcar suburbs attracted a wide range of people from the working to upper-middle class, with the great majority being middle class. By keeping fares low in cost and offering a flat fare with free transfers, streetcar operators encouraged households to move to the suburban periphery, where the cost of land and a new home was cheaper. In many places, especially the Midwest and West, the streetcar became the primary means of transportation for all income groups.[12]

As streetcar systems evolved, crosstown lines made it possible to travel from one suburban center to another, and interurban lines connected



Nineteenth-century public parks *were pleasure grounds with gardens of exotic plants, fountains and ponds, paths for strolling, and sometimes a spacious greensward. In Buffalo (at the left), the creation of a system of parks and parkways by Frederick Law Olmsted spurred the transformation of adjoining land into attractive, tree lined neighborhoods, such as the Parkside East Historic District. In St. Louis (below), Lafayette Square became the heart of a growing residential district distinguished by some of the city's finest homes. (Photo by L. Newman, courtesy New York Office of Parks, Recreation and Historic Preservation; historic photo courtesy Landmarks Association of St. Louis)*

outlying towns to the central city and to each other. Between the late 1880s and World War I, a number of industrial suburbs appeared outside major cities, including Gary, Indiana, outside Chicago, and Homestead and Vandergrift, both outside Pittsburgh.[13]

Concentrated along radial streetcar lines, streetcar suburbs extended outward from the city, sometimes giving the growing metropolitan area a star shape. Unlike railroad suburbs which grew in nodes around rail stations, streetcar suburbs formed continuous corridors. Because the streetcar made numerous stops spaced at short intervals, developers platted rectilinear subdivisions where homes, generally on small lots, were built within a five- or 10-minute walk of the streetcar line. Often the streets were extensions of the gridiron that characterized the plan of the older city.

Neighborhood oriented commercial facilities, such as grocery stores, bakeries, and drugstores, clustered at the intersections of streetcar lines or along the more heavily traveled routes. Multiple story apartment houses also appeared at these locations, designed either to front directly on the street or to form a u-shaped enclosure around a recessed entrance court and garden.

In many places the development of real estate closely followed the introduction of streetcar lines, sometimes being financed by a single operator or developer. East of Cleveland, Ohio, the community of Shaker Village took form after 1904 when O. P. and M. J. van Sweringen set out to create a residential community for middle- and upper-class families. To ensure the fastest and most direct service for home owners they eventually purchased a right-of-way and installed a high-speed electric streetcar to downtown Cleveland. By 1911, the community of Shaker Village was incorporated, establishing a system of local government that would ensure the community's development as a residential suburb for decades to come.[14]

Streetcar use continued to increase until 1923 when patronage reached 15.7 billion and thereafter slowly declined. There was no distinct break between streetcar and automobile use from 1910 to 1930. As cities continued to grow and the demand for transportation increased, the automobile was adopted by increasing numbers of upper-middle to upper-income households, while streetcars continued to serve the middle and working class population. Streetcar companies, however, in the 1920s remained confident about their industry's future. By the 1930s, many became mass transit companies, adding buses and trackless trolleys to their fleets to make their routes more flexible. In a few cities—Boston, Chicago, New York, and Detroit—mass transit included elevated trains and subways.[15]

By the 1940s, streetcar ridership had dropped precipitously. The vast increase in automobile ownership and decentralization of industry to locations outside the central city after World War II brought an end to the role of the streetcar as a determinant of American urban form.

Early Automobile Suburbs: 1908 to 1945

The introduction of the Model-T automobile by Henry Ford in 1908 spurred the third stage of suburbanization. The rapid adoption of the mass-produced automobile by Americans led to the creation of the automobile-oriented suburb of single-family houses on spacious lots that has become the quintessential American landscape of the twentieth century.

Between 1910, when Ford began producing the Model-T on a massive scale, and 1930, automobile registrations in the United States increased from 458,000 to nearly 22 million. Automobile sales grew astronomically: 2,274,000 cars in 1922, more than 3,000,000 annually from 1923 to 1926, and nearly four and a half million in 1929 before the stock market crashed.

Bird's eye view (1974) of Shaker Square, *outside Cleveland, Ohio, shows the transit right-of-way, planned shopping center, nearby apartment houses, and outlying subdivisions of detached houses which attracted residents to the newly incorporated town of Shaker Heights in the early decades of the twentieth century. (Photo by Eric Johannesen, courtesy Ohio Historic Preservation Office)*

According to Federal Highway Administration statistics, 8,000 automobiles were in operation in 1900, one-half a million in 1910, nine-and-a-quarter million in 1920, and nearly 27 million in 1930.[16]

The rise of private automobile ownership stimulated an intense period of suburban expansion between 1918 and the onset of the Great Depression in 1929. As a result of the increased mobility offered by the automobile, suburban development began to fill in the star-shaped city created by the radial streetcar lines. Development on the periphery became more dispersed as workers were able to commute longer distances to work, as businesses moved away from the center city, and as factories, warehouses, and distribution centers were able to locate outside the railroad corridors due to the increased use of rubber-tired trucks.[17]

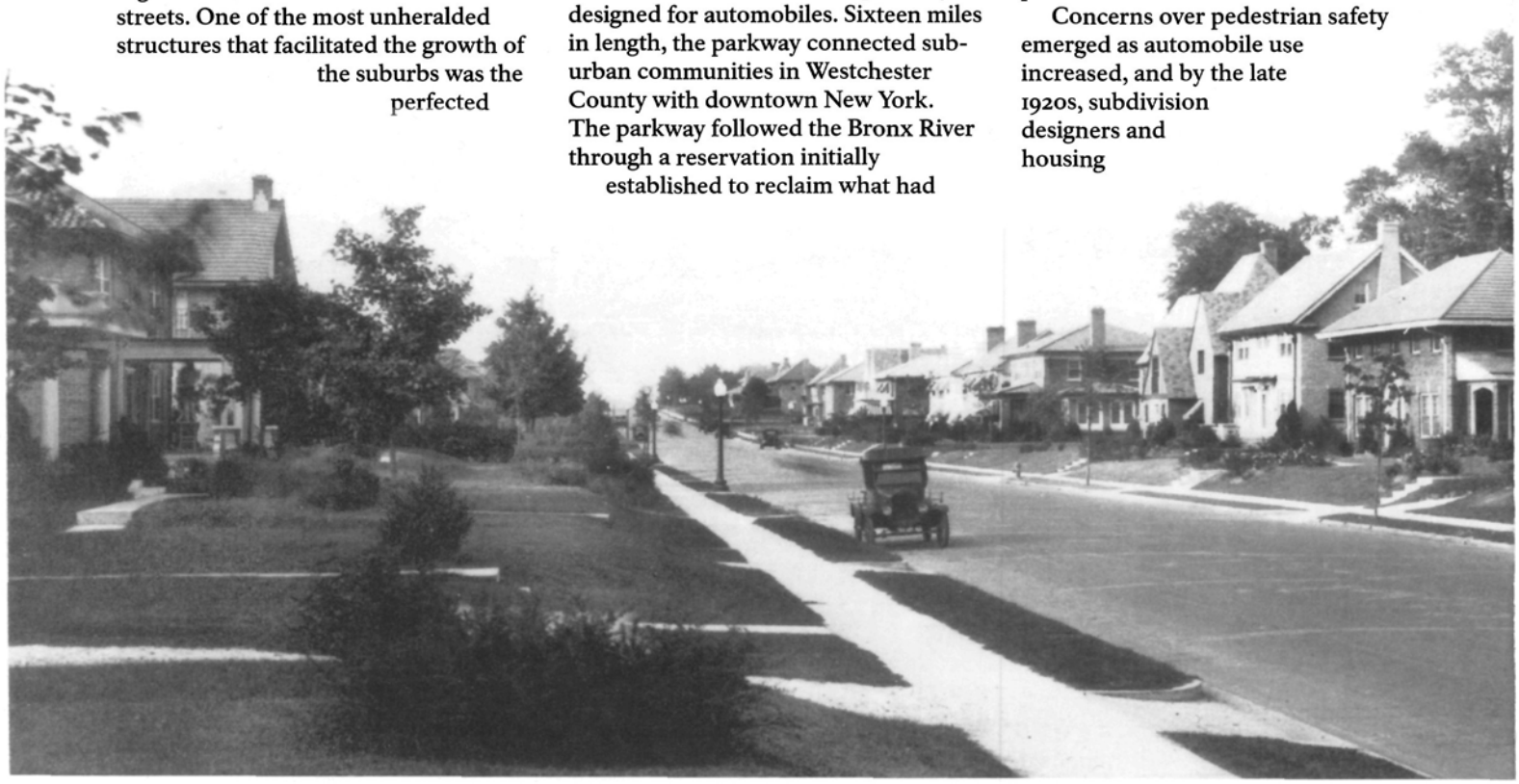
The popularity of the automobile brought with it the need for a new transportation infrastructure that included the construction and improvement of roads and highways, development of traffic controls, building of bridges and tunnels, and widening and reconstruction of downtown streets. One of the most unheralded structures that facilitated the growth of the suburbs was the perfected mechanical road. Automobiles required smooth, hard surfaces, and before 1900, even in cities, most roads were unpaved. Asphalt, introduced in the 1890s, became the common road surface by 1916.[18]

Beginning in the 1890s, the City Beautiful movement spurred advances in city planning and urban design. Transportation planning, as well as the improvement of streets, was recognized as central to the coordinated growth of urban areas. In cities such as Kansas City, Denver, and Memphis, the collaboration of planners, landscape architects, architects, and local political leaders, forged a rich legacy of parkways and boulevards that linked new residential suburbs with the center city. Highly influential were the writings of Charles Mulford Robinson, a journalist and advocate for Denver's park and parkway system. These included *Improvement of Towns and Cities* (1901), *Width and Arrangement of Streets* (1911), and *City Planning, with Special Reference to the Planning of Streets and Lots* (1916).

Proposed in 1906 and built between 1916 and 1924, the Bronx River Parkway was one of the first modern parkways designed for automobiles. Sixteen miles in length, the parkway connected suburban communities in Westchester County with downtown New York. The parkway followed the Bronx River through a reservation initially established to reclaim what had become a polluted and unsightly watershed. Featuring a right-of-way ranging from 300 to 1,800 feet, the parkway was extensively planted with trees and shrubs, provided scenic river views, and achieved the illusion of being totally separated from adjoining development. The alignment featured graceful curves and gently followed the undulating topography to give motorists, many of whom were daily commuters, a pleasurable driving experience.[19]

Metropolitan areas expanded as streets, parkways, and boulevards extended outward, opening up new land for subdivision. As new radial arterials were built, suburban development became decentralized, creating fringes of increasingly low densities. With commuters no longer needing to live within walking distance of the streetcar line, residential suburbs could be built at lower densities to form self-contained neighborhoods that afforded more privacy, larger yards, and a park-like setting. Neighborhood improvements typically included paved roads, curbs and gutters, sidewalks, and driveways, as well as connections to municipal water systems and other public utilities.[20]

Concerns over pedestrian safety emerged as automobile use increased, and by the late 1920s, subdivision designers and housing



reformers alike were examining ways to separate neighborhood traffic from arterial traffic and to design neighborhoods that remained safe, quiet, and free of speeding traffic. The "Radburn Idea," first introduced by Clarence Stein and Henry Wright in their 1928 design for a "Town for the Motor Age," called for separate circulation systems to serve pedestrians and automobiles. Published a year later in the regional plan for metropolitan New York City, Clarence Perry's Neighborhood Unit Formula called for a hierachy of streets of varying widths to control automobile traffic.

In 1916 the United States Congress passed the Federal Aid Highway Act, authorizing expenditure of Federal funds for up to 50 percent of the cost of State road projects within the Federal aid network. During the 1920s, most States established highway departments, and the total miles of surfaced highway in the Nation doubled. [21]

During the "golden age of highway building" from 1921 to 1936, more than 420,000 miles of roads were built in the United States. The increase in intercity highways and roads connecting farms with markets made new land available for suburbanization. Advances in highway engineering, including the development of divided highways, bridges and tunnels, and cloverleaves, made automobile travel faster and safer.[22]

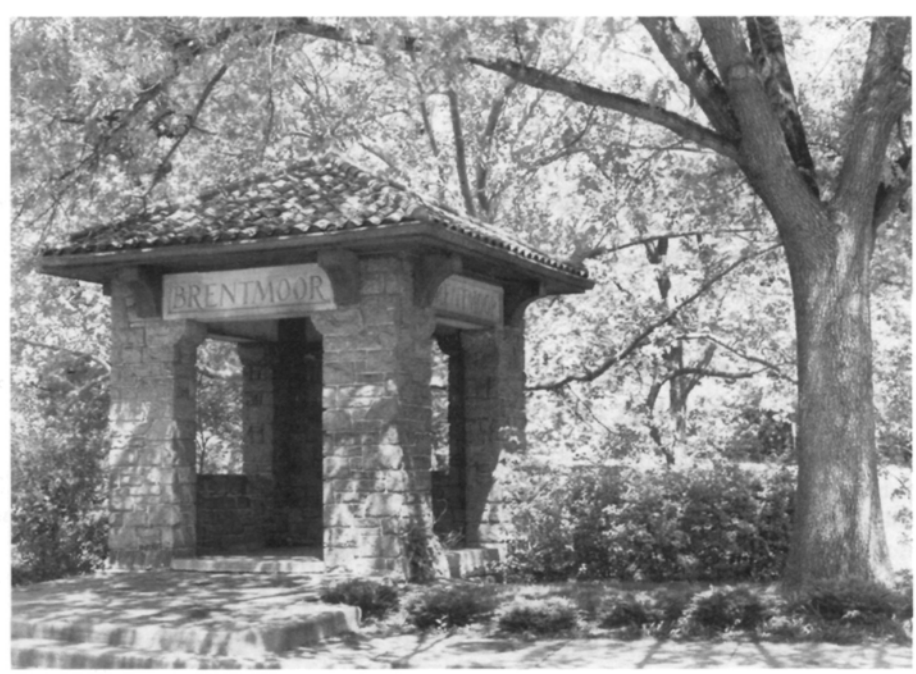
Suburban areas continued to grow faster than central cities, and the planning of metropolitan highway systems gained increasing attention. High speed roads extending outward from central cities appeared in major metropolitan areas: Lakeshore Drive to Chicago's northern suburbs opened in 1933; and, in 1936, the Grand Central Parkway was added to the already extensive system of roads on Long Island built under Robert Moses's direction. In 1940, the opening of the Arroyo Seco Freeway in Los Angeles heralded a new age of freeway construction connecting city and suburb.[23]

The Futurama exhibit sponsored by General Motors Corporation at the 1939 New York World's Fair presented one of the most influential and memorable visions for the future of highway engineering, and with it suburban life. Designed by Norman Bel Geddes, the exhibit featured a huge diorama of the American landscape overlaid with an intricate network of high-speed, multilane, limited-access highways joining country and city. Called "magic motorways," the highways featured total separation of grades and graduated speeds. A ring highway surrounded the city interconnecting with radial freeways that guided suburban commuters to the center city where exit ramps eventually led to underground garages.[24]

In its 1938 report, *Toll Roads and Free Roads*, the Bureau of Public Roads called for a master plan for highway development, a series of upgraded interregional roads, and the construction of express highways into and through cities to relieve urban

(left) ***Historic photograph (c. 1928) of a typical new subdivision*** *of "better homes" in Indianapolis. By the 1920s, improvements in suburban street design to accommodate the automobile, the growing acceptance of land-use controls, and the development of public utilities resulted in a host of suburban amenities, including paved roads, mandatory setbacks, sidewalks and driveways, concrete curbs, street lighting, and underground utilities. (Photo by Bass Photo Company, courtesy William Henry Smith Memorial Library, Indiana Historical Society)*

(right) ***Streetcar Waiting Station*** *at Brentmoor Park, Clayton, Missouri, one of three residential parks designed by Henry Wright and featured in a 1913* Architectural Record *article, entitled "Cooperative Group Planning." Each subdivision featured an arrangement of fine houses along a private curvilinear drive, commonly owned gardens and grounds, and a perimeter service road. (Photo by Esley Hamilton, courtesy Missouri Department of Natural Resources)*



traffic congestion. The report also outlined the routes for six transcontinental highways and debated the feasibility of using tolls to support highway construction.[25]

The emergency of World War II intervened, and Federal highway spending was limited to the improvement of roads directly serving military installations or defense industries. In 1941 President Franklin D. Roosevelt appointed a seven-member Interregional Highway Committee to work with Public Roads administrator Thomas H. MacDonald on recommendations for national highway planning following the war. The committee's recommendations for an extensive 32,000-mile national network of expressways resulted in the Federal Aid Highway Act of 1944. The act authorized a National System of Interstate Highways, which included metropolitan expressways designed to relieve traffic congestion and serve as a framework for urban redevelopment.[26]

Since Congress did not appropriate additional funds for the system's construction until the mid-1950s, State highway departments were forced to rely on other sources, including public bonds, toll revenues, and the usual matching Federal funds earmarked for the improvement of the Federal aid highway network.[27]

From the end of World War I until 1945, increasing automobile ownership accelerated suburbanization and significantly expanded the amount of land available for residential development. This trend further stimulated the design and construction of a new infrastructure of roads, highways, bridges, and tunnels, laying the groundwork for highway systems that would transform metropolitan areas after World War II.

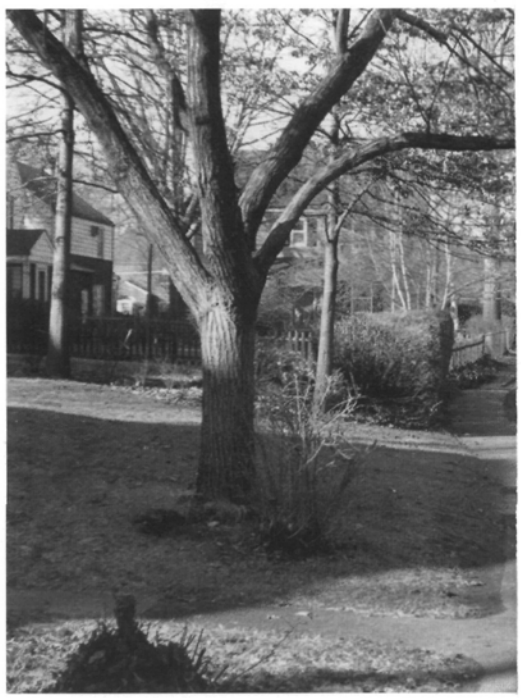
Post-World War II and Early Freeway Suburbs: 1945 to 1960

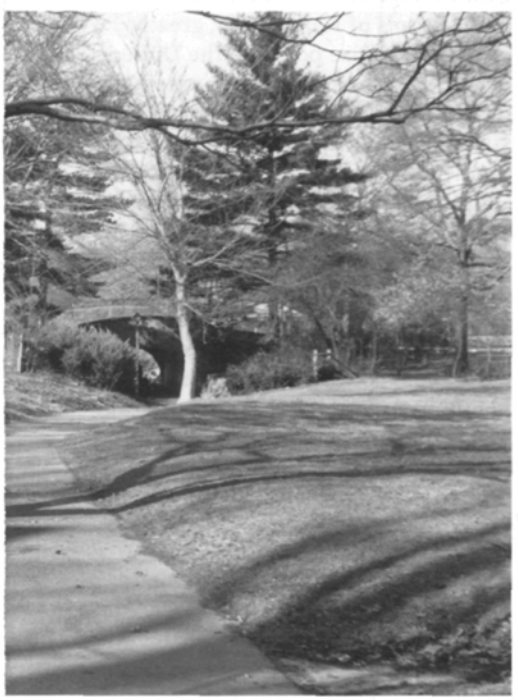
The fourth and most dramatic stage of suburbanization in the United States followed World War II. The postwar housing boom, manifested in the so-called "freeway" or "bedroom" suburbs, was fueled by increased automobile ownership, advances in building technology, and the Baby Boom. A critical shortage of housing and the availability of low-cost, long-term mortgages, especially favorable to veterans, greatly spurred the increase of home ownership.

Highway construction authorized under the 1944 act got off to a slow start, but by 1951, every major city was working on arterial highway improvements with 65 percent of Federal funds being used for urban expressways. Under President Dwight D. Eisenhower, the Federal Aid Highway Act of 1956 provided substantial funding for the accelerated construction of a 41,000-mile, national system of interstate and defense highways which included 5,000 miles of urban freeways.[28]

By the late 1950s, the interstate system began to take form and already exerted considerable influence on patterns of suburbanization. As the network of high-speed highways opened new land for development, residential subdivisions and multiple family apartment complexes materialized on a scale previously unimagined. Increasing national prosperity, the availability of low-cost, long-term mortgages, and the application of mass production and prefabrication methods created favorable conditions for home building and home ownership. These factors gave rise to merchant builders, who with loan guarantees and an eager market, were able to develop extensive tracts of affordable, mass produced housing at unprecedented speeds.

The increase of large, self-contained residential subdivisions, connected to the city by arterials and freeways, created a suburban landscape dependent on the automobile for virtually all aspects of daily living. Retailing facilities migrated to the suburbs and were clustered in community shopping centers or along commercial strips. Large regional shopping centers began to appear first along arteries radiating from the center city and then along the new circumferential highways. By 1960, the construction of suburban industrial and office parks added further impetus to the decentralization of the American city and the expansion of America's suburban landscape.





(above) ***The Park-and-Shop (1930) in the Cleveland Park Historic District, Washington, D.C.,*** *designed by architect Arthur B. Heaton for real estate developers Shannon & Luchs, illustrates the convenience of shopping in one's neighborhood. Located on a busy street leading out of the city, this early shopping center provided an innovative front automobile parking lot and a collection of stores serving daily needs that were planned, developed, owned and managed as a single unit. (Photo courtesy Library of Congress, Theodor Horydczak Collection, LC-H814-T-1049)*

Designed as the "Town for the Motor Age," Radburn, New Jersey, *featured separate circulation systems for pedestrians and automobiles. A network of interconnected pedestrian paths and a grade separation (visible at the right), similar to the "arches" Olmsted designed for Central Park in New York City, enabled residents to reach their neighborhood park on foot and pass from one park to another without crossing busy streets. (Photo by Louis DiGeronimo, courtesy New Jersey Department of Environmental Protection)*

SUBURBAN LAND DEVELOPMENT PRACTICES

The basic landscape unit of residential suburban development is the subdivision. The development process starts with a parcel of undeveloped land, often previously used for agricultural purposes, large enough to be subdivided into individual lots for detached, single-family homes and equipped with improvements in the form of streets, drainage, and utilities, such as water, sewer, electricity, gas, and telephone lines. In other suburban neighborhoods, groups of attached dwellings and apartment buildings would be arranged within a large parcel of land and interspersed with common areas used for walkways, gardens, lawns, parking, and playgrounds.

Developers and the Development Process

Until the early twentieth century, most subdivisions were relatively small, and suburban neighborhoods tended to expand in increments as adjoining parcels of land were subdivided and the existing grid of streets extended outward. Subdivisions were generally planned and designed as a single development, requiring developers to file a plat, or general development plan, with the local governmental authority indicating their plans for improving the land with streets and utilities. Homes were often built by different builders and sometimes the owners themselves.

As metropolitan areas established large public water systems and other public utilities, developers could install utilities at a lower expense and often used enhancements, such as paved roads, street lighting, and public water, to attract buyers. Early planned subdivisions typically included utilities in the form of reservoirs, water towers, and drainage systems designed to follow the natural topography and layout of streets. Power plants and maintenance facilities were also included to support many of the larger planned developments of multiple family dwellings.

Historically the subdivision process has evolved in several overlapping stages and can be traced through the roles of several groups of developers.

The Subdivider

Beginning in the nineteenth century, the earliest group of developers, called "subdividers," acquired and surveyed the land, developed a plan, laid out building lots and roads, and improved the overall site. The range of site improvements varied but usually included utilities, graded roads, curbs and sidewalks, storm-water drains, tree planting, and graded common areas and house lots. Lots were then sold either to prospective homeowners who would contract with their own builder, to builders buying several parcels at once to construct homes for resale, or to speculators intending to resell the land when real estate values rose. Land improvement companies typically organized to oversee the subdivision of larger parcels, especially those forming new communities along railroad and streetcar lines. Most subdividers, however, operated on a small scale—laying out, improving, and selling lots on only a few subdivisions a year.[29]

The Home Builder

By the turn of the twentieth century, subdividers discovered they could enhance the marketability of their land by building houses on a small number of lots. At a time of widespread real estate speculation and fraud, home building helped convince prospective buyers that the plan on paper would materialize into a suburban neighborhood. Subdividers still competed in the market through the types of improvements they offered, such as graded and paved roads, sidewalks, curbs, tree plantings, and facilities such as railroad depots or streetcar waiting stations. These developers continued to view their business as selling land, not houses, and the realization of subdivision plans took many years.[30]

The Community Builder

The term "community builder" came into use in the first decade of the twentieth century in connection with the city planning movement and the development of large planned residential neighborhoods. Developers of this type were real estate entrepreneurs who acquired large tracts of land that were to be developed according to a master plan, often with the professional expertise of site planners, landscape architects, architects, and engineers. Proximity to schools, shopping centers, country clubs and other recreational facilities, religious structures, and civic centers, as well as the convenience of commuting, became important considerations for planning new neighborhoods and attracting home owners.[31]

Community builders, such as Edward H. Bouton of Baltimore and J. C. Nichols of Kansas City, greatly affected land use policy in the United States, influencing to a large extent the design of the modern residential subdivision. Nichols's reputation was based on the development of the Country Club District in Kansas City–an area that would ultimately house 35,000 residents in 6,000 homes and 160 apartment buildings. Because they operated on a large scale and controlled all aspects of a development, these developers were concerned with long-term planning issues such as transportation and economic development, and extended the realm of suburban development to include well-planned boulevards, civic centers, shopping centers, and parks.[32]

To promote predictability in the land market and protect the value of their real estate investments, community builders became strong

advocates of zoning and subdivision regulations. Nichols and other leading members of the National Association of Real Estate Boards (NAREB) sought alliances with the National Conference on City Planning (NCCP), American Civic Association (ACA), and American City Planning Institute (ACPI) to bring the issues of suburban development within the realm of city planning.[33]

Community builders often sought expertise from several design professions, including engineering, landscape architecture, and architecture. As a result, their subdivisions tended to reflect the most up-to-date principles of design; many achieved high artistic quality and conveyed a strong unity of design. By relying on carefully written deed restrictions, as a private form of zoning, they exerted control over the character of their subdivisions, attracted certain kinds of home buyers, and protected real estate values. Many became highly emulated models of suburban life and showcases for period residential design by established local or regional masters.[34]

Historic view (c. 1940) of Colonial Village, *Arlington, Virginia, the first FHA-approved large-scale rental community. Begun in 1935 with financing from the New York Life Insurance Company, it was the first of many such projects by operative builder Gustave Ring which capitalized on the insurance industry's need for secure investments and the loan protection offered under the National Housing Act of 1934. Designed by architects Harvey Warwick and Frances Koenig in the Georgian Revival style, the community was influenced by models of American Garden City planning, particularly Chatham Village and World War I communities, such as Seaside Village and Yorkship. (Photo courtesy Library of Congress, Theodor Horydczak Collection, neg. LC-H814-T-2497-001)*

Crestwood *(1920-1947) was one of many subdivisions developed in Kansas City's Country Club District by J. C. Nichols, one of the Nation's most influential community developers. The high standard of design for which Nichols became known relied upon the use of deed restrictions that were comprehensive and renewable and the collaboration of designers representing different professions. Landscape architects Hare & Hare laid out the streets, designed entry portals, and developed plans for many small parks, while a host of local architects designed spacious "garden homes" in a variety of revival styles. The city's first neighborhood association was founded here in 1922. (Photo by Brad Finch, courtesy Missouri Department of Natural Resources)*

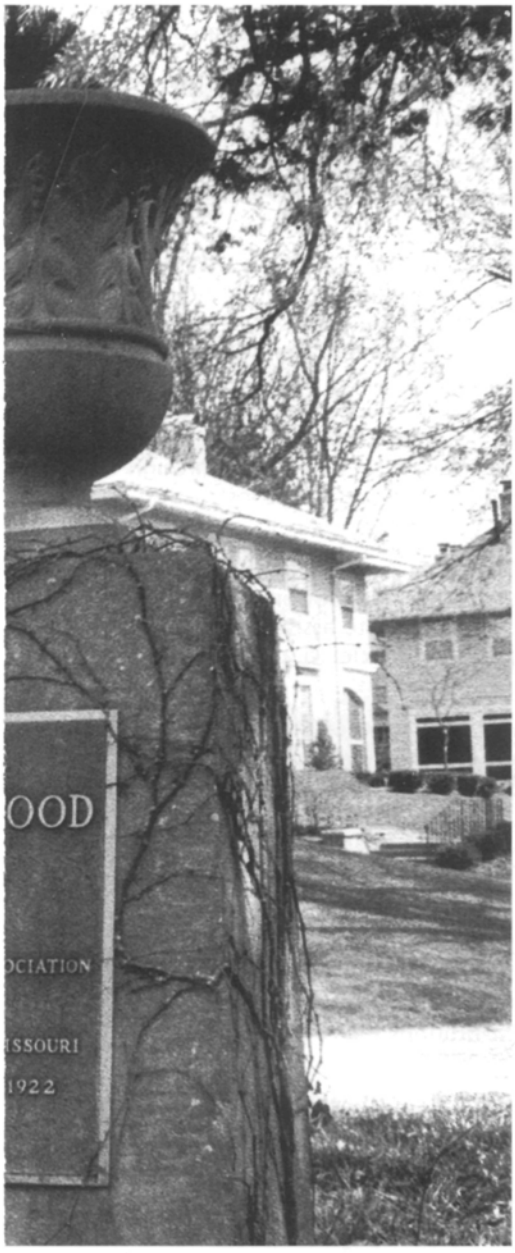
The Operative Builder

By the 1920s, developers were building more and more homes in the subdivisions they had platted and improved, thereby taking control of the entire operation and phasing construction as money became available. In the 1930s when the home financing industry was restructured, such "operative builders" were able to secure FHA-approved, private financing for the large-scale development of neighborhoods of small single-family houses as well as rental communities offering attached dwellings and apartments. Depression-era economics and the demand for defense-related and veterans' housing which followed encouraged them to apply principles of mass production, standardization, and prefabrication to lower construction costs and increase production time.

The Merchant Builder

Federal incentives for the private construction of housing, for employees in defense production facilities during World War II and for returning

veterans immediately following the War, fostered dramatic changes in home building practices. Builders began to apply the principles of mass production, standardization, and prefabrication to house construction on a large scale. Builders like Fritz B. Burns and Fred W. Marlow of California began to build communities of an unprecedented size, such as Westchester in southeast Los Angeles, where more than 2,300 homes were built to FHA standards between 1941 and 1944.[35]



By greatly increasing the credit available to private builders and liberalizing the terms of FHA-approved home mortgages, the 1948 Amendments to the National Housing Act provided ideal conditions for the emergence of large-scale corporate builders, called "merchant builders." Because of readily available financing, streamlined methods of construction, and an unprecedented demand for housing, these builders acquired large tracts of land, laid out neighborhoods according to FHA principles, and rapidly constructed large numbers of homes. Since completed homes sold quickly, developers could finance new phases of construction and, as neighborhoods neared completion, move on to new locations.

On Long Island, William Levitt began building rental houses for veterans in 1947. Soon after he shifted to home sales and perfected the process of on-site mass production which became the basis for the large-scale "Levittowns" he created in New York, New Jersey, and Pennsylvania. Outside Chicago, Philip Kluztnick, former administrator of the National Housing Agency, with the expertise of town planner Elbert Peets, created the town of Park Forest. In 1949 Fritz B. Burns and Henry J. Kaiser of Kaiser Community Homes built 1,529 single-family homes at Panorama City in California, a suburban community which resulted from the collaboration of Kaiser's industrial engineers and the Los Angeles architectural firm of Wurdeman and Becket. In the late 1940s, Joseph Eichler began the first of his forward looking subdivisions of contemporary homes in California.[36]

Merchant builders greatly influenced the character of the post-World War II metropolis. The idea of selling both a home and a lifestyle was not simply a marketing ploy by developers to ensure sales, it represented the integration of the suburban ideals of home ownership and community in a single real estate transaction. For many, this meant the attainment of middle-class status, financial prosperity, and family stability—the fulfillment of the American dream.

Financing Suburban Residential Development

Early Trends

Until the mid-twentieth century, home ownership was costly and beyond the reach of most Americans. In the nineteenth century, most well-established families purchased their homes outright. By the early twentieth century, several organizations were making home ownership possible for many moderate-income families by offering installment plans that required a small down payment and modest monthly payments. These included building and loan associations, real estate developers, such as Chicago's Samuel Gross, and even companies, such as Sears & Roebuck, which were in the business of selling mail order houses.

In the 1920s, it was common practice for home owners to secure short-term loans requiring annual or semi-annual interest payments and a balloon payment of the principal after three to five years. This meant that home owners needed to refinance periodically and often carried second and third mortgages. This system worked well during times of prosperity, but during a period of economic downturn and declining real estate values, it was disastrous.[37]

Beginning in the early 1930s, a series of Federal laws dramatically expanded the financing available for the purchase of owner-occupied dwellings and stimulated private investment in the home building industry through the construction of suburban subdivisions and rental apartment villages. The program of Federal home mortgage insurance, established under the National Housing Act of 1934, set the stage for the emergence of large operative builders, and after World War II, merchant builders.

President's Conference on Home Building and Home Ownership

President Herbert Hoover drew attention to housing as a national priority, especially in the aftermath of the stock market crash in 1929 when the growth of the home building industry came to an abrupt halt and the rate of mortgage foreclosures quickly accelerated.

Figure 2.

Federal Laws and Programs Encouraging Home Ownership

1932 **Federal Home Loan Bank Act** (47 Stat. 725) establishes home loan bank system authorizing advances secured by home mortgages to member institutions.

1933 **Home Owners' Loan Act** (48 Stat. 129) establishes Home Owners' Loan Corporation, an emergency program (1933-36) introducing the concept of low-interest, long-term, self-amortizing loans and enabling home owners to refinance mortgages with five percent, 15-year amortizing loans.

1934 **National Housing Act** (48 Stat. 1246) creates Federal Housing Administration (FHA) to establish national standards for the home building industry and authorizes Federal insurance for privately-financed mortgages for homes, housing subdivisions, and rental housing. First FHA mortgages require a 20 percent down payment and monthly payments amortized over 20 years.

1938 **Amendments to the National Housing Act** (52 Stat. 8) allow Federal mortgage insurance on as much as 90 percent of home's value and extend payments up to 25 years (Title II). Law authorizes the creation of the Federal National Mortgage Association (Fannie Mae) to buy and sell mortgages under the Reconstruction Finance Corporation.

1941 **Amendments to the National Housing Act** (55 Stat. 31) adds Title VI, creating a program of Defense Housing Insurance targeting the construction of housing in areas designated critical for defense and defense production.

1942 **Federal defense housing and home loan programs** consolidated in the National Housing Agency under Executive Order 9070.

1944 **Servicemen's Readjustment Act** (58 Stat. 291), commonly known as the "GI Bill," authorized Veteran's Administration to provide loan guarantees for home mortgages for World War II veterans.

1946 **Veterans' Emergency Housing Act of 1946** (60 Stat. 215) authorizes Federal assistance in housing returning veterans and extends FHA authority to insure mortgages under Title VI.

1947 **National Housing Agency renamed** Housing and Home Finance Agency (61 Stat. 954).

1948 **Housing Act of 1948** (62 Stat. 1276) liberalizes FHA mortgage terms by allowing insurance on up to 95 percent of a home's value and loan payment periods extending as much as 30 years (Section 203). Also adds Section 611 to Title VI of the National Housing Act to encourage the use of cost-reduction techniques through large-scale modernized site construction of housing.

1949 **Federal Housing Act of 1949** (63 Stat. 413) establishes a national housing directive to provide Federal aid to assist in community development, slum clearance, and redevelopment programs.

1954 **Housing Act of 1954** (68 Stat. 590) provides comprehensive planning assistance under Section 701.

In December 1931, he convened the President's Conference on Home Building and Home Ownership to examine all aspects of the housing industry. The conference attracted several thousand participants, including many of the Nation's experts in home financing, community planning, house design, and zoning.

The conference was forward looking in seeking solutions for lowering construction costs, for modernizing houses for comfort and efficiency, and for stabilizing real estate values. Conference committees strongly endorsed advances in zoning, construction, community planning, and house design. Of prime concern, however, was broadening home ownership and creating a system of home mortgage credit that provided better protection for both home owners and lending institutions.[38]

Federal Home Loan Banking System

As an initial remedy, the Federal Home Loan Bank Act of July 22, 1932, created the Federal home loan bank system by establishing a credit reserve and

authorizing member institutions, primarily savings and loan associations, to receive credit secured by first mortgages. This was an important and lasting step in organizing the system of mortgage financing that remains in place today. Legislation in 1938 created the Federal National Mortgage Association, commonly known as "Fannie Mae," to buy and sell mortgages from member institutions, making additional money available for home mortgages.[39]

Home Owners' Loan Corporation

When the Roosevelt Administration began in 1933, home foreclosures were occurring at a rate of 1,000 per day. Through the emergency Home Owners' Loan Corporation, established by law June 13, 1933, the Federal government forestalled the avalanche of foreclosures and began to stabilize real estate values. For the first time, home owners were able to secure home loans that were fully amortized over the length of the loan–in this case 15 years at five percent rate of interest. Although the short-lived program lasted only three years, it was considered a success economically and set an important precedent for the use of long-term, low-interest amortized home mortgages, which would a year later become the foundation of the FHA mortgage insurance program.[40]

Federal Housing Administration (FHA)

The creation of a permanent, national program of **mutual mortgage insurance**, under Title II of the National Housing Act of 1934 signed into law by President Franklin D. Roosevelt on June 27, 1934, revolutionized home financing and set in motion a series of events that effectively broadened home ownership. The FHA was authorized to provide Federal insurance for privately-financed mortgages for homes, housing subdivisions, and rental housing. Through the development of standards, as well as its review and approval of properties for mortgage insurance, the FHA institutionalized principles for both neighborhood planning and small house design.

The Federal government insured loans granted by private lending institutions for as much as 80 percent of a property's value. Mortgages were to be fully amortized through monthly payments extending over 20 years. Interest rates were to be relatively low, not exceeding six percent at the time, and required down payments were set at 20 percent of the cost of a home. Amendments to the Act in 1938 allowed Federal mortgage insurance on as much as 90 percent of a home's value and extended payments up to 25 years. The Housing Act of 1948 further liberalized FHA mortgage terms by allowing insurance on as much as 95 percent of a home's value and extending the period of repayment up to 30 years.[41]

Defense Housing Programs

The addition of Title VI to the National Housing Act on March 28, 1941, created a program of Defense Housing Insurance, targeting rental housing in areas designated critical for defense and defense production. This was continued to provide veterans' housing after the War and eventually enabled operative builders to secure Federal mortgage insurance on as much as 90 percent of their project costs. The FHA and other World War II housing programs, including the Defense Homes Corporation, financed through the Reconstruction Finance Corporation, and public housing projects, funded under the Lanham Act (54 Stat. 1125), were consolidated in the National Housing Agency in 1942, which was renamed the Housing and Home Finance Agency in 1947.[42]

The "GI" Bill

Under the Servicemen's Readjustment Act of 1944, commonly called the "G.I. Bill of Rights," the Veterans Administration (VA) provided guarantees on home mortgages for veterans returning from military service. The liberalized terms of FHA-approved loans enabled veterans to use their "GI" benefit in place of cash, thereby eliminating the down payment on a new house altogether.

Planning and Domestic Land Use

Beginning in the 1890s, the City Beautiful movement sparked renewed interest in the formal principles of Renaissance and Baroque planning, especially in the design of downtown civic centers and planned industrial towns. The Columbian Exposition of 1893 demonstrated the value of a comprehensive planning process that called for the development of a master plan and the collaboration of public officials and designers representing several professions. The writings of Charles Mulford Robinson and the example of Daniel Burnham's Chicago Plan (1909) stimulated interest in city improvements and offered models for imposing a rational and orderly design upon the Nation's growing industrial cities.[43]

Calling for a synthesis of aesthetics and functionalism, the City Beautiful movement gained momentum in the early twentieth century, becoming inseparable from the broader movement for efficiency, civic improvements, and social reform that marked the Progressive era. The movement exerted considerable influence beyond the center city, principally in the form of extensive boulevard and parkway systems, public parks and playgrounds, public water systems, and other utilities. In many cities, these measures established an infrastructure that would support and foster suburban development for decades to come.

Concerned with metropolitan growth, city planners became advocates for a coordinated planning process that embraced transportation systems, public utilities, and zoning measures to restrict land use. Dialogue took place among community builders, who made up the National Association of Real Estate Boards (NAREB) and typically relied on deed restrictions to control land use, and planners in organizations such as the American Civic Association (ACA), American City Planning Institute (ACPI), and National Conference on City Planning (NCCP). Together these groups promoted local zoning and comprehensive planning measures, and encouraged the development of residential suburbs

according to established professional principles of landscape architecture and community planning.

Deed Restrictions

Early land developers maintained control over the development of their subdivisions through the use of deed restrictions. The placement of restrictions on the deed of sale ensured that land was developed according to the original intent; it also protected real estate values for both home owners and the subdivider, who expected to sell improved lots over the course of many years. According to Marc Weiss, restrictions "legitimized the idea that private owners should surrender some of their individual property rights for the common good" and became the "principal vehicle by which subdividers and technicians tested and refined the methods of modern land use planning." Restrictions were attached to the sale of land and considered binding for a specified period of time, after which they could be renewed or terminated. Restrictions were enforceable through civil law suits filed by the developer or other property owners.[44]

Deed restrictions were used to establish neighborhood character by controlling the size of building lots and dictate the design and location of houses. With the advice of Olmsted and Vaux about 1870, the Riverside Improvement Company introduced guidelines requiring a mandatory 30-foot setback and setting a minimum cost of construction. In the exclusive neighborhoods of St. Louis, called "private places," deed restrictions set a minimum cost on dwellings to be built and established mandatory setbacks to ensure that the neighborhood assumed a cohesive and dignified character. Developer Edward H. Bouton's Roland Park (1891), in Baltimore, Maryland, became recognized as one of the Nation's most successful residential developments in large part due to an extensive set of deed restrictions that controlled numerous aspects of design and land use, including lot sizes, building lines, setbacks, minimum dwelling values, and requirements for owner residency.[45]

The use of such private restrictions was upheld at the 1916 meeting of the NCCP by leading representatives of several professions, including Kansas City community builder J. C. Nichols, city planner John Nolen, and landscape architect Frederick Law Olmsted Jr. During the 1920s, deed restrictions became the hallmark of a range of planned residential communities, fashioned as country club or garden suburbs, that were attracting an increasing professional and rising middle class of American cities.[46]

In 1928 the Institute for Research in Land Economics and Public Utilities in Chicago published Helen C. Monchow's *Use of Deed Restrictions in Subdivision Development,* which set forth a comprehensive list of items to be included in deed restrictions, including design factors such as the height of buildings and lot frontage as well as limitations on occupancy and commercial activities. The Committee on Subdivision Layout at the 1931 President's Conference adapted Monchow's list in its recommendations and endorsed deed restrictions–the principal means for ensuring neighborhood stability, maintaining real estate values, and protecting residential neighborhoods from nonconforming industrial or commercial activities—especially in jurisdictions lacking zoning ordinances. The idea that deed restrictions were the foundation of good subdivision design was underscored by the committee's membership, which included preeminent designers John Nolen, Henry Hubbard, and Henry Wright, and was chaired by Harland Bartholomew, an urban planner and theorist renowned for work in St. Louis and Des Moines.[47]

Within the context of worsening economic conditions, developers and community builders alike examined the use of such deed restrictions in creating pleasing neighborhoods of moderate priced homes under the new FHA programs. Real estate practices and the rating system used to approve suburban neighborhoods for FHA-insured loans encouraged the use of restrictions in the 1930s and 1940s as a safeguard for maintaining neighborhood stability and property values. The Urban Land Institute's *Community Builder's Handbook,* first published in 1947, advocated deed restrictions, including ones establishing design review committees, to ensure that neighborhoods were maintained in harmony and conformity with the original design intent.

By mid-century the use of deed restrictions to qualify prospective home owners and residents based on factors,

Streetscape of early Tudor Revival homes *in the Shaker Village Historic District (1919-1950), Shaker Heights, Ohio. Covering almost 3000 acres and including more than 4500 contributing resources, the district retains the cohesive architectural character envisioned by original developers Oris P. and Mantis J. van Sweringen. Set forth in the* Shaker Village Standards *and enforced through deed restrictions, special design principles required that homes be professionally designed and adhere to one of four architectural styles, a uniform setback from the street, and a minimum cost of construction. (Photo by Patricia J. Forgac, courtesy Ohio Historic Preservation Office)*

such as race, ethnicity, and religion, became challenged in American courts. In the landmark decision, *Shelley v. Kraemer,* 334 U.S. 1, 1948, the U.S. Supreme Court determined such restrictions based on race "unenforceable," providing a legal foundation for the principle of equal access to housing and influencing changes in Federal housing policy.[48]

Zoning Ordinances and Subdivision Regulations

Local governments began to impose zoning ordinances in the early twentieth century as a means of controlling land use and ensuring the health, welfare, and safety of the American public. In 1909 Los Angeles passed the first zoning ordinance, creating separate districts or "zones" for residential and industrial land uses. In 1916 New York City was among the first to impose regulations on the height and mass of buildings through local legislation.

In support of the Better Homes movement following World War I, the U.S. Department of Commerce joined private advocacy groups, such the NCCP, ACA, and ACPI, in encouraging local legislation for zoning. The Department began publishing an annual report, *Zoning Progress in the United States,* and a series of manuals including *A Zoning Primer* (1922), *A City Planning Primer* (1928), *The Preparation of Zoning Ordinances* (1931), and *Model Subdivision Regulations* (1932). In 1924 the Department's Advisory Committee on Zoning issued a model zoning enabling act for State governments. By 1926 zoning ordinances had been adopted by more than 76 cities, and by 1936, 85 percent of American cities had adopted zoning ordinances.[49]

Zoning proposals faced opposition and legal challenges in many localities. In the 1926 case, *Village of Euclid, Ohio v. Ambler Realty Co.* (272 U.S. 365), the U.S. Supreme Court upheld the constitutionality of zoning in which exclusively residential development of single-family houses was supported as the most inviolate of land uses.[50]

The 1931 President's Conference upheld zoning regulations and comprehensive planning measures as the primary means for controlling metropolitan growth and as an essential factor in designing and regulating stable residential neighborhoods. This was primarily the work of the Committee on City Planning and Zoning, under the leadership of Frederic A. Delano who had previously chaired the committee for New York's Regional Plan, which concluded that zoning provisions should promote a sense of community and that residential development throughout the metropolitan region should be organized in neighborhood units based on Clarence Perry's model.[51]

Comprehensive Planning and Regional Plans

Comprehensive planning, coupled with zoning and subdivision regulations, became the focal point of discussions between the Nation's leading community builders and urban planners beginning in 1912. Organizations such as the ACPI, NCCP, and ACA brought planners, builders, and real estate interests together to promote controls over land use in the Nation's growing metropolitan areas.

A joint statement of the NAREB and ACPI in 1927 led to the U.S. Department of Commerce's issuance of a model statute, *A Standard City Planning Act,* to encourage State governments to pass legislation enabling local and metropolitan land-use planning. California became a leader in real estate and planning reform, establishing the Nation's first State planning statute and enabling subdivision regulations by local ordinance in the late 1920s.[52]

Regional planning commissions and associations began to form in burgeoning metropolitan areas such as New York, San Francisco, and Los Angeles, for the purpose of planning and

coordinating metropolitan growth and developing regional plans. Planning documents such as the multiple volume *Regional Survey of New York and Its Environs* reflected some of the most advanced thinking of the time and addressed a variety of suburban issues such as neighborhood planning, commercial and industrial zoning, recreation, and transportation. Plans would receive substantial attention at the 1931 President's Conference, and would have far-reaching influence on the development of FHA standards for the design of residential suburbs.[53]

Trends in Subdivision Design

Beyond transportation, an important set of "push and pull" factors motivated families in the mid-nineteenth century to establish their home in the "borderland" outside the city. First was the "push" factor: as American cities rapidly industrialized, they became increasingly crowded and congested places perceived to be dangerous and unhealthy. Creating a "pull" factor, domestic reformers, such as Catharine Beecher and Andrew Jackson Downing, provided a strong antidote for urban living by extolling the moral virtues of country living and domestic economy. The Romantic landscape movement, often called the Picturesque, provided a compelling image of life in a semi-rural village where dwellings in a host of romantic revival styles blended into a horticulturally rich, naturalistic landscape. In such an environment, the home became a sanctuary from the evils and stresses of life in the city and a proper setting for the practice of democratic ideals.[54]

In the *Treatise on the Theory and Practice of Landscape Gardening* (1841), Downing provided extensive instructions on the location, layout, and planting of rural homes. For an American audience, Downing reinterpreted the principles of the English landscape gardening tradition of Humphry Repton and Capability Brown and the writings of English theorist John Claudius Loudon. He introduced readers to the principles of variety, unity, and harmony, which could be applied to the naturalistic design of home grounds that attained an aesthetic ideal characterized as "picturesque" or "beautiful."[55]

In coming decades, Downing's ideas would transform the American countryside and attract many followers who would give material form to the suburban ideal. Naturalistic gardening principles espoused by Downing, Robert Morris Copeland, H.W. S. Cleaveland, Maximilian G. Kern, Jacob Weidenmann, and others left their imprint in a variety of subdivision types from gridiron plats to planned curvilinear suburbs.[56]

In the 1890s advances in city planning associated with the City Beautiful movement began to influence both the location and design of residential subdivisions. While the expansion of streetcar lines fostered widespread suburban development, park and parkway systems in many cities became a magnet for upper middle-income neighborhoods. Nineteenth-century influences of informal, naturalistic landscape design gave way to more formal plans based on the Beaux Arts principles of Renaissance and Baroque design, often mirroring the form of planned towns and cities.

In the years preceding and following World War I, American landscape traditions fused with English Garden City influences to form distinctive American garden suburbs with gently curving,

Rows of bungalows *characterize the rectilinear grid of the Santa Fe Place Historic District (1897-1925) in Kansas City, Missouri. Low in profile and structurally simple, the bungalow with an open floor plan and prominent porch, replaced the ornate Victorian suburban home, giving rise in the first decades of the twentieth century to the ubiquitous "bungalow suburbs" of many midwestern cities. (Photo by Patricia Brown Glenn, courtesy Missouri Department of Natural Resources)*

Figure 3.

Trends in Suburban Land Development and Subdivision Design

1819	Early rectilinear suburb developed at Brooklyn Heights, New York.
1851	Early curvilinear suburb platted at Glendale, Ohio.
1853	First village improvement society founded at Stockbridge, Massachusetts.
1857-59	Llewellyn Park, New Jersey, platted outside New York City.
1858	First urban park in U. S., Central Park, developed in New York City by Olmsted and Vaux.
1869	Riverside, outside Chicago, platted by Olmsted and Vaux, establishes ideal model of the Picturesque curvilinear suburb.
1869-71	Garden City, Hempstead, Long Island, platted by Alexander Tunney Stewart.
1876-92	Sudbury Park, Maryland, designed by Frederick Law Olmsted.
1889	Camillo Sitte (Austria), author of *Der Stadtebau,* calls attention to the informal character of Medieval towns, as a model for village design.
1891-1914	Roland Park, Baltimore, developed by Edward H. Bouton, designed by the Olmsted firm using extensive deed restrictions and featuring cul-de-sacs.
1893	Columbian World's Exposition, Chicago, introduction of comprehensive planning and City Beautiful movement
1898	Ebenezer Howard, Garden City diagram published in *Tomorrow* (republished as *Garden Cities of Tomorrow,* 1902).
1902-05	Garden cities of Letchworth (1902) and Hampstead Gardens (1905), England, designed by Parker and Unwin, introducing cul-de-sacs, superblock planning, open-court clustering, and other Garden City features.
1902	*Improvement of Towns and Cities* by Charles Mulford Robinson calls for civic improvements such as roads, site planning, playgrounds and parks, street plantings, paving, lighting, and sanitation.
1904	American Civic Association (ACA) formed by the merging of the American League for Civic Improvement and American Park and Outdoor Art Association.
1907-50s	Country Club District, Kansas City, developed by community builder J. C. Nichols, with landscape architectural firm of Hare and Hare.
1909	Los Angeles passes first zoning ordinance creating separate districts or zones for residential land use.
1909	Raymond Unwin's *Town Planning in Practice* published, adopted in England and United States.
1909-11	Forest Hills Gardens developed by Russell Sage Foundation, with architect Grosvenor Atterbury, and landscape architect Frederick Law Olmsted, Jr.
1909	National Conference on City Planning (NCCP) founded; First National Conference on City Planning and Problems of Congestion convened.
1911-29	Shaker Village, near Cleveland, Ohio, by the van Sweringen Brothers.
1915	Kingsport, Tennessee, laid out by city planner John Nolen.
1916	New York City establishes zoning ordinance.
1917	American City Planning Institute (ACPI) founded, renamed the American Institute of Planners (1938).
1918-19	World War I emergency housing programs under United States Housing Corporation (U.S. Department of Labor) and Emergency Fleet Housing Corporation (U.S. Shipping Board).
1922	Publication of *The American Vitruvius: An Architect's Handbook of Civic Art* by Werner Hegemann and Elbert Peets.
1923	U.S. Division of Building and Housing (U.S. Department of Commerce) issues model zoning enabling act for State governments.

Figure 3, continued

1921	John Nolen makes the first plan for the Garden City at Mariemont, Ohio.
1923	Regional Planning Association of America (RPAA) founded.
1924	Sunnyside Gardens, New York City, designed by Clarence Stein and Henry Wright of RPAA for the City Housing Corporation.
	Standard State Zoning Enabling Act published by Secretary of Commerce Herbert Hoover's Advisory Committee on Zoning.
1926	U.S. Supreme Court upholds constitutionality of zoning (*Village of Euclid, Ohio, v. Ambler Realty Company,* 272 U.S. 365, 1926).
1927	Publication of John Nolen's *New Towns for Old: Achievements in Civic Improvement in Some American Small Towns and Neighborhoods.*
1928	*Standard City Planning Enabling Act* published by U.S. Department of Commerce's Advisory Committee on City Planning and Zoning following 1927 joint resolution by ACPI and NAREB. Helen C. Monchow's *The Use of Deed Restrictions in Subdivision Development* published by Institute for Research in Land Economics.
1928	Radburn, New Jersey, designed as a "Town for the Motor Age" by RPAA-planners Clarence Stein and Henry Wright.
1929	Clarence Perry's Neighborhood Unit plan published in volume 7 of the *Regional Survey of New York and Its Environs.*
1929	Wall Street Crash, Great Depression follows.
1931	President's Conference on Home Building and Home Ownership convened; *Neighborhoods of Small House Design* by Robert Whitten and Thomas Adams published.
1932	U.S. Department of Commerce publishes *Model Subdivision Regulations.*
1932-36	Chatham Village, Pittsburgh, developed by Buhl Foundation, providing a model for Garden City planning incorporating superblock and connected dwellings.
1934	*The Design of Residential Areas* by Thomas Adams published.
1935	First phase of construction begins at Colonial Village, Arlington, Virginia, the first privately financed, large-scale rental housing community insured by the FHA under Section 207 of the National Housing Act of 1934.
1935-38	Resettlement Administration establishes greenbelt communities at Greenbelt, Maryland; Greenhills, Ohio; Greendale, Wisconsin; and Greenbrook, New Jersey (never executed).
1936	FHA publishes *Planning Neighborhoods for Small Houses,* with the first standards for the design of neighborhoods of small houses, encouraging patterns of curvilinear streets, cul-de-sacs for safety and economy, and neighborhood character.
	Urban Land Institute founded (independent nonprofit research organization).
1939	Early large-scale FHA-approved neighborhoods of single-family dwellings developed, including Edgemore Terrace, Wilmington, Delaware, and Arlington Forest, Arlington, Virginia.
1941	Developer Fritz Burns begins Westchester, Los Angeles, using FHA mortgage insurance for housing defense workers under Title VI of National Housing Act, as amended.
1942	Establishment of the National Association of Home Builders (NAHB), Home Builders and Subdividers Division split from NAREB.
1946-47	Former NHA administrator Phillip Klutznick, and town planner Elbert Peets, begin planning of Park Forest, Illinois; and William Levitt begins development of the first Levittown on Long Island.
1947	Urban Land Institute publishes first edition of *Community Builder's Handbook.*
1948	United States Supreme Court rules that covenants based on race to be "unenforceable" and "contrary to public process" (*Shelley v. Kraemer* 334 U.S.1).
1949	Joseph Eichler develops his first tract of modern housing at Sunnyvale, California.
1951	Publication in England of *Toward New Towns* by Clarence S. Stein.
1961	Innovative proposal for 260-home subdivision published in *Arts & Architecture's* Case Study Series.

tree lined streets; open landscaped lawns and gardens; and attractive homes in a panoply of styles. While American designers looked to the historic precedents offered by the European continent for inspiration, the residential communities they fashioned were unequivocally American in the treatment of open space, accommodation of the automobile, the entrepreneurship of real estate developers, and reliance on American industry to make housing functional yet aesthetically appealing.

By the end of the 1930s, the American automobile suburb of small, moderately priced homes along curving tree lined streets and cul-de-sacs had taken form. Reflecting a synthesis of design influences that spanned a century, it was the product of the 1931 President's Conference on Home Building and Home Ownership and the institutionalization of FHA housing standards among the Nation's home builders and home mortgage lenders. It provided the template for the quintessential suburb that in the years following World War II would come to typify the American experience.

Gridiron Plats

In the United States, the gridiron city plan provided the most profitable means to develop and sell land for residential use. Most American cities laid out in the second half of the nineteenth century were platted in extensive grids. These gridiron plats would guide their future growth, many following the rectilinear land surveys called for by the Northwest Ordinance and the Homestead Act.[57]

The introduction of the streetcar in many cities extended the opportunity for home ownership in suburban neighborhoods to middle- and working-class households by the end of the nineteenth century. Streetcar lines helped form the initial transportation system, overlaying the grid plan of streets and creating a checkerboard of major arterial routes. The gridiron remained the most efficient and inexpensive way to subdivide and sell land in small lots. Many cities extended outward between 1890 and 1920, fulfilling the demand for low-cost houses and providing the template for what has been named the "bungalow suburb."[58]

A similar pattern occurred in the cities laid out after the introduction of the mass produced automobile. In the San Fernando Valley near Los Angeles, development after 1940 took place on a grid of arterial and collector streets that conformed to the section lines of the rectilinear survey; the grid, measuring one square mile, was further subdivided to allow more intensive development.[59]

Gridiron plats received serious criticism in the twentieth century for several reasons: the uniformity of housing, lack of fresh air and sunlight afforded by their narrow lots, the lack of adequate recreational space, and the speculative nature of home building they fostered. Planners and landscape architects looked first to nineteenth-century Picturesque principles of design and later more formal designs with radial curves as an antidote to the endless monotonous grid of American cities.

Planned Rectilinear Suburbs

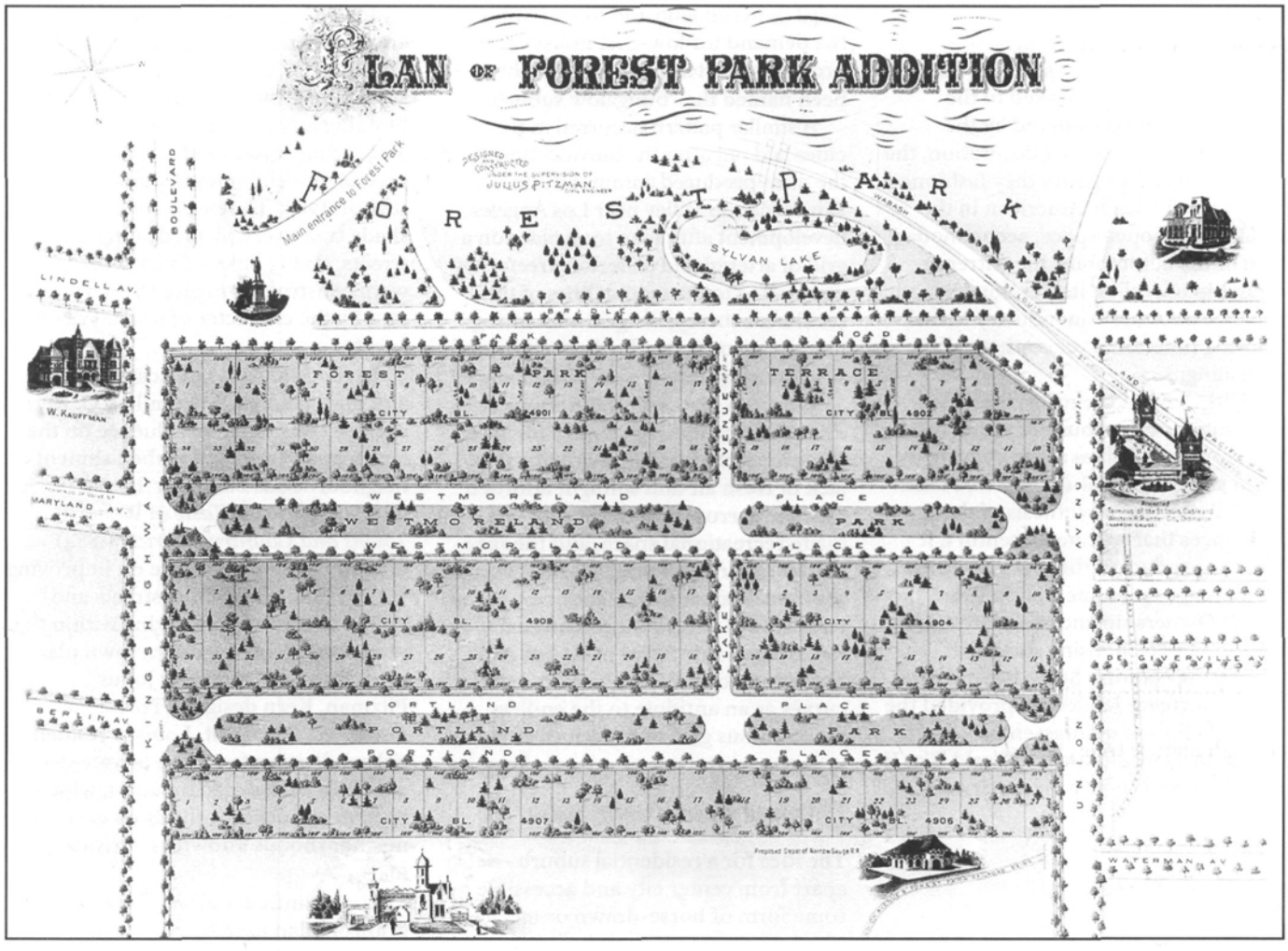
The idea for a residential suburb—set apart from center city and accessible by some form of horse-drawn or mechanized transportation—is believed to have originated in the early nineteenth century. These contrasted to urban enclaves with enclosed private gardens, such as Boston's Louisburg Square, or residential streets arranged around public squares, such as the Colonial-period plan for Savannah, Georgia, which were within walking distance of the center city.

One of the earliest documented residential suburbs is Brooklyn Heights, established in 1819 across the East River from lower Manhattan. Accessible by ferry, the suburb featured a 60-acre plat laid out in a grid with streets 50 feet in width and blocks measuring 200 by 200 feet.[60]

In 1869, merchant and philanthropist Alexander Tunney Stewart purchased a 500-acre parcel of land on Long Island for the purpose of creating a model planned city, "Garden City," which was to be connected to Brooklyn and New York City by a private commuter railroad. Engineer Delameter S. Denton developed a plan subdividing the tract into uniform building lots along two parallel streets, and architect John Kellum designed several model homes in picturesque revival styles. Thousands of mature shade trees were planted along the streets, and 15 miles of picket fences were constructed to give the new community the character of a small village.[61]

In the Midwest, landscape designer and park planner, Maximilian G. Kern exerted considerable influence on the landscape design and embellishment of neighborhoods based on the rectilinear grid. Kern's *Rural Taste in Western Towns and Country Districts* (1884) offered developers advice on improving the design of residential streets and public spaces while working within the ubiquitous grid of western town planning. With civil engineer Julius Pitzman, Kern designed Forest Park Addition (1887) in St. Louis, a residential subdivision featuring private streets and long landscaped medians, which became a model for the city's exclusive neighborhoods known as "private places."[62]

Highly influential was the modified gridiron plan used by community builder J. C. Nichols in developing the Country Club District in Kansas City, Missouri, and Kansas. Developed as a garden suburb between 1907 and the early 1950s, the District's many residential subdivisions formed a grid of long, narrow rectangular blocks interspersed by an occasional curvilinear or diagonal avenue or boulevard. The landscape architecture firm of Hare and Hare, working for Nichols over a 20-year period beginning in 1913, modified the rectilinear grid so that many of the roads running east to west followed the contours of the rolling topography rather than the straight, parallel lines drawn by the land surveyor. Departure from the grid enabled the designers to create triangular islands at the site of intersecting roads which were developed as small parks and gardens.[63]



Plan (1887) of Forest Park Addition, *the largest and most elaborate of St. Louis's "private places," was the collaborative design of engineer Julius Pitzman and the city's former park superintendent Maximilian G. Kern, who was also the influential author of* Rural Taste in Western Towns and Country Districts *(1884). (Lithograph by Gast, courtesy Missouri Historical Society, neg. 21508)*

Early Picturesque Suburbs

The Picturesque suburb with its plat of curvilinear streets and roads, the product of the Romantic landscape movement, became the means by which upper-income city dwellers sought to satisfy their aspiration for a suburban home within commuting distance of the city. Although Downing's books focused on the landscape design of individual homes in a rural or semi-rural setting, his ideas for the curvilinear design of suburban villages appeared in his essays, "Hints to Rural Improvements" (1848) and "Our Country Villages" (1850) which were published in the *Horticulturalist.*[64]

Early Picturesque, curvilinear suburbs, such as Glendale (1851), Ohio, drew from the Picturesque theories of Downing and Loudon as well as the Rural Cemetery movement, which followed the example set in 1831 by Mount Auburn Cemetery outside Boston. By mid-century, rural cemeteries exhibiting curvilinear roadways, naturalistic landscape gardening, and irregular lot divisions that followed the natural topography were appearing outside most major U.S. cities. On a larger scale, early subdivisions reflected similar principles of design, creating a naturalistic, parklike environment for domestic life.[65]

The most influential of the early Picturesque suburbs was Llewellyn Park, New Jersey, located west of New York City, and platted in 1857 by Llewellyn Haskell. Haskell carried out his idea for a protected, gated country park with the advice of Downing's former partner Alexander Jackson Davis and landscape architects Eugene A. Baumann and Howard Daniels. The design featured a layout of curvilinear roads and a common natural park, called the "ramble," and was influenced in large part by Downing's writings and Olmsted and Vaux's plans for Central Park, which was taking form in nearby New York City. Illustrated and described in Henry Winthrop Sargent's supplement to the Sixth Edition of Downing's *Theory and Practice* (1859), Llewellyn Park became one of the best

known and most highly emulated examples of suburban design.[66]

Riverside and the Olmsted Ideal

Riverside, Illinois, outside Chicago, platted by Frederick Law Olmsted and Calvert Vaux in 1869 for the Riverside Improvement Company, further articulated the ideal for the Picturesque suburb, earning a reputation as the archetypal example of the curvilinear American planned suburb. Located on the banks of the Des Plaines River along the route of the Burlington Railroad, Riverside is recognized as the first clearly documented example in the United States where the principles of landscape architecture were applied to the subdivision and development of real estate.[67]

Olmsted's plan provided urban amenities and homes that, built at a comfortable density, afforded privacy in a naturalistic parklike setting. The first design requirement was a tranquil site with mature trees, broad lawns, and some variation in the topography. The second was good roads and walks laid out in gracefully curved lines to "suggest leisure, contemplativeness, and happy tranquility," and the third was the subdivision of lots in irregular shapes. Designed to follow the topography, the curving roads were built without curbs and placed in slight depressions, making them less visible from the individual lots and enhancing the community's pastoral character.[68]

Riverside established the ideal for the spacious, curvilinear subdivision which would be emulated by developers, planners, and home owners for generations to come. Between 1857 and 1950, Olmsted's practice, which was continued by Frederick Law Olmsted, Jr., and John Charles Olmsted under the Olmsted Brothers firm, planned 450 subdivisions in 29 States and the District of Columbia, many of them in conjunction with park or parkway systems.[69]

By the early twentieth century, Olmsted's principles had become the basis for laying out suburban neighborhoods within the emerging professional practice of landscape architecture in the United States. Olmsted had many followers including, Ernest Bowditch, Stephen Child, Herbert and Sidney Hare, Henry V. Hubbard, George E. Kessler, and Samuel Parsons, Jr. Parsons and Hubbard became highly influential through their writings, which provided instructions in keeping with the Olmsted principles of subdivision design. Parsons, who was the superintendent of New York's Central Park for many years and the designer of the Albemarle Park subdivision in Asheville, North Carolina, provided detailed instructions on laying out home grounds and siting houses along steep, hillside slopes in *How to Plan the Homegrounds* (1899) and *The Art of Landscape Architecture* (1915).[70]

First published in 1917 and used as the standard professional text into the 1950s, the *Introduction to the Study of Landscape Design* by Hubbard and Theodora Kimball, influenced several generations of landscape architects. To demonstrate the layout of subdivisions to follow a site's natural topography, the text illustrated the example of Moss Hill, a subdivision Hubbard and his partner James Sturgis Pray designed in the western suburbs of Boston that was connected to the center city by Olmsted's "Emerald Necklace" of parks and parkways. In a 1928 article in *Landscape Architecture* on the influence of topography on land subdivision, Hubbard showed his readers how a curvilinear plan could be fit to varying slopes and subdivided into small, regularly shaped lots.[71]

The 1930s brought renewed interest in Olmsted's principles after *Landscape Architecture* reprinted Olmsted and Vaux's *Preliminary Report upon the Proposed Suburban Village at Riverside* (1868) and several other selections from the papers of Frederick Law Olmsted. Several months later in a well-illustrated article, "Riverside Sixty Years Later," Howard K. Menhinick praised the village atmosphere, beauty of the mature plantings, and unified setting created by spacious lots, planting strips, and numerous parks. In the *Design of Residential Areas* (1934), prominent city planner Thomas Adams recognized Riverside as a leading example of American suburban design. The example of Riverside and later advances in curvilinear subdivision design would be applied to neighborhoods of small homes by the FHA in the mid-1930s and the community building standards of the Urban Land Institute in the 1940s and 1950s.[72]

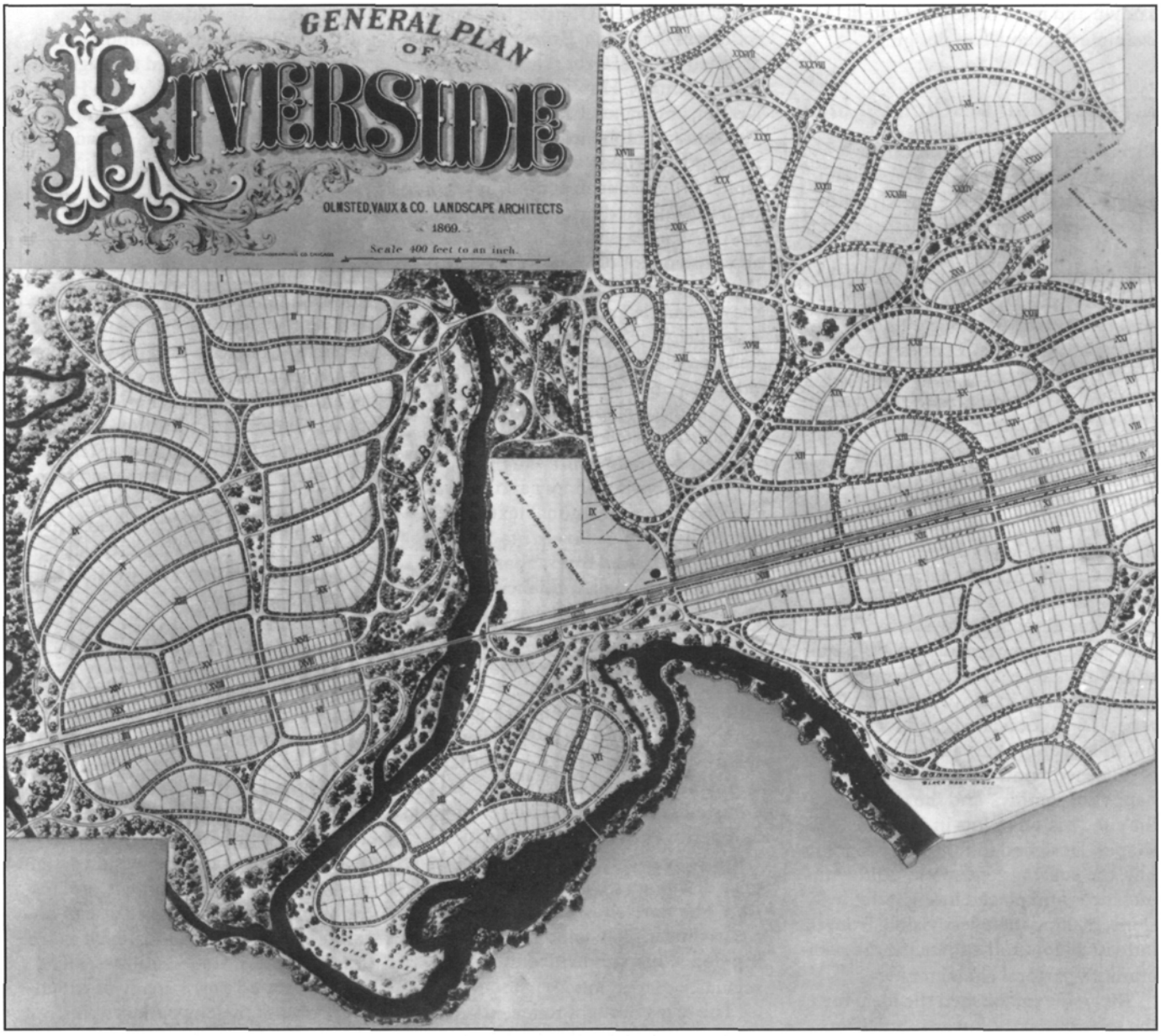
City Beautiful Influences

A movement for the design of cohesive suburban neighborhoods in the form of residential parks and garden suburbs began to emerge in the 1890s and continued into the early decades of the twentieth century. A general plan of development, specifications and standards, and the use of deed restrictions became essential elements used by developers and designers to control house design, ensure quality and harmony of construction, and create spatial organization suitable for fine homes in a park setting.

Boulevards and Residential Parks

City Beautiful principles, which were expressed in the writings of Charles Mulford Robinson and the creative genius of designers such as George E. Kessler and the Olmsted firm, resulted in the design and redesign of many American cities. They called for the coordination of transportation systems and residential development, and fostered improvements in the design of suburban neighborhoods, such as tree lined streets, installed utilities, and neighborhood parks, many of which were part of the city park systems. Across the Nation, suburbs following naturalistic Olmsted principles emerged such as Druid Hills (1893), in Atlanta, begun by Olmsted, Sr., and completed by the successor Olmsted firm; Hyde Park (1887) in Kansas City and the first phase of Roland Park (1891) in Baltimore, both designs by George E. Kessler.

They also gave rise to grand landscaped boulevards such as Cleveland's Fairmount Boulevard and parkways such as Boston's Jamaicaway, which extending outward from the city center became a showcase of elegant homes and carriage houses on wide spacious lots, often built by the Nation's leading



1869 Plan *(above)* ***for Riverside, Illinois, by Olmsted, Vaux and Company*** *with present day streetscape. Riverside is considered the archetypal example of the American curvilinear planned suburb. Along the broad, gently curving streets, houses on spacious facing lots were offset and informal groupings of shrubs and trees furnished to provide privacy and create an informal, pastoral setting. (Plan courtesy Frederick Law Olmsted National Historical Site; photo courtesy National Historic Landmarks Survey)*

architects and echoing popular Beaux Arts forms. In more modest western cities such as Boise, Idaho, boulevards became major corridors from which cross streets, following the city's grid, led to quiet neighborhoods of modest homes built by local builders.

Subdivisions built for the upper-income and professional classes could be laid out according to Olmsted principles, with roads designed to follow the natural topography and natural features such as knolls or depressions shaped into traffic circles or cul-de-sacs. Deep ravines or picturesque outcroppings were often left undeveloped or retained as a natural park for the purposes of recreation or scenic enjoyment. The spacious layout of curving streets and gently undulating topography gave way, however, to more compactly subdivided tracts for rising middle-income residents by the 1890s.

Early Radial Plans

Influenced by the City Beautiful movement, a formalism unknown to the early Olmsted and Picturesque suburbs began to influence the design of residential suburbs. Formal principles of Beaux Arts design, drawn from European Renaissance and Baroque periods, emphasized radial and axial components that provided an orderly hierarchy of residential streets and community facilities.

Ladd's Addition (1891) in Portland, Oregon, would be one of the earliest attempts to adopt a radial plan drawn from Baroque principles of planning for the design of a garden suburb built to accommodate streetcar commuters. Laid out by engineers Arthur Hedley and Richard Greenleaf for developer William S. Ladd, the plan makes use of four wide, diagonal avenues emanating from a central circular park to the four corners of the parcel. Narrower streets running east to west and north to south extended outward to intersect with diagonal cross streets, forming in each quadrant a small diamond-shaped park. A commercial corridor and the streetcar line formed the subdivision's northern edge. The maintenance and planting of the parks became the responsibility of the city park authority, and by 1910 city landscape architect E. T. Mische had begun an active program of planting. Ladd's Addition predated, yet appears to have anticipated, the formality of Ebenezer Howard's English Garden City diagram, which was published several years later.[73]

Because radial plans were relatively simple to lay out, especially on flat terrain, they maintained some popularity into the 1920s appearing in Tucson's El Encanto Estates in the late 1920s and in Hare and Hare's plan for Wolflin Estates in Amarillo, Texas. Their greatest expression would occur later in response to the English Garden City movement and relate to advances in American city planning that went well beyond the turn-of-the-century residential park to impose a garden-like setting on the larger and more comprehensive scale of a self-contained community.[74]

Twentieth-Century Garden Suburbs

Garden Suburbs and Country Club Suburbs

As developers like J. C. Nichols defined their role as community builders, they sought increasing control over the design of their subdivisions, devised ways to enhance a neighborhood's parklike setting and to reinforce the separation of city and suburb. Entrance ways with plantings, signs, and sometimes portals, reinforced a neighborhood's separation from noisy and crowded arterials and outlying commercial and industrial activity. The circulation network, often laid out in the formal geometry of axial lines and radial curves, imposed a rational order on many new subdivisions. Community parks and nearby country clubs provided recreational advantages. By the 1920s efforts were being undertaken to create compatible commercial centers on the periphery or at major points along the streetcar lines or major automobile arteries.

The laying out of traffic circles, residential courts, and landscaped boulevards provided open spaces for planting shade trees, ornamental trees, and gardens. Community parks, often having community centers or club houses, and nearby country clubs provided recreational advantages. Examples such as Myers Park in Charlotte, North Carolina, developed between 1911 and 1943 according to plans by John Nolen, Earl Sumner Draper, and Ezra Clarke Stiles, would receive national recognition for their quality of design and become important regional prototypes.[75]

Influence of the Arts and Crafts Movement

The Arts and Crafts movement, with its emphasis on craftsmanship, native materials, harmony of building construction with natural environment, and extensive plantings became a popular idiom for suburban landscape improvements, especially on the West Coast. Promoted by editors such as Gustav Stickley and Henry Saylor, these ideas were quickly imitated nationwide by designers intent on creating residential parks that offered housing in various price ranges from clustered bungalow courts to spacious upper-income subdivisions such as Prospect Park (1906) in Pasadena, in large part the work of master architects Charles and Henry Greene. Country club suburbs by Hare and Hare, such as Crestwood (1919-1920) in Kansas City, featured rusticated stone portals and corner parks. In Henry Wright's residential parks, Brentmoor Park, Brentmoor, and Forest Ridge (1910-1913) outside St. Louis, service entrances were separated from carriage drives, elegant homes were arranged around common parkland, and signs of forged iron and trolley waiting shelters of rusticated stone added to the Craftsman aesthetic.[76]

American Garden City Planning

English Garden City planning had considerable influence in the United States, coinciding with advances in city planning spurred by the City Beautiful movement and widespread interest during the Progressive era for housing reform which extended to the design of neighborhoods for lower-income residents. English social reformer Ebenezer

Howard, introduced the Garden City idea in *Tomorrow: A Peaceful Path to Real Reform* (1898), which was republished as *Garden Cities of Tomorrow* (1902). Howard diagramed his ideal city as a series of concentric circles devoted to bands of houses and gardens for residents of mixed income and occupations. A large park, public buildings, and commercial shops formed the center of the city, while an outer ring provided for industrial activities, an agricultural college, and social institutions and linked the community to an outlying greenbelt of agricultural land.

Howard's conceptual diagrams were first translated into the English garden suburbs of Letchworth (1902) and Hampstead Gardens (1905) by Barry Parker and Raymond Unwin, whose theories would have substantial influence on subdivision design in the United States. Designed as socially integrated communities for working-class families, the English suburbs resulted from comprehensive planning and encompassed a unified plan of architectural and landscape design. Limited in both geographical area and population to promote stability, they were designed to provide a healthy environment offering sunlight, fresh air, open space, and gardens. Innovative was the subdivision of the land into superblocks which could be developed in a unified manner, with architectural groupings alternating with open parks. A hierarchical circulation system made extensive use of cul-de-sacs that created a sense of enclosure and privacy within each large block.[77]

English Garden City planning influenced American residential suburbs in several ways. It strengthened an already strong interest in developing neighborhoods as residential parks, giving emphasis to both architectural character and landscape treatments as aspects of design. It was consistent with the emerging interest in collaborative planning, whereby residential development

was to be based on sound economic analysis and draw on the combined design expertise of planners, architects, and landscape architects. It provided models for higher-density residential development that offered attractive and healthful housing at lower costs.

Through traveling lectures and his influential *Town Planning in Practice* (1909), English Garden City designer Raymond Unwin called for a formal town center, often taking a radial or semi-radial form that, extending outward in a web-like fashion, gradually blended into more informally arranged streets and blocks. The Garden City movement, under the influence of the designers Frederick Law Olmsted, Jr., John Nolen and Werner Hegemann and Elbert Peets, would give great complexity to town planning and subdivision design by integrating the principles of English planning with the American Olmsted tradition of naturalistic design.

Forest Hills

In the United States, the influence of the English garden suburbs melded with interest in Beaux Arts planning and first appeared in the design of Forest Hills Gardens (1909-1911), a philanthropic project sponsored by the Russell Sage Foundation. The design was a collaboration between developer Edward H. Bouton, landscape architect and planner Frederick Law Olmsted, Jr., and architect Grosvenor Atterbury. Located on the route of the Long Island Railroad, Forest Hills was designed to

Panoramic view of intersecting streets in Guilford *(1912-1950), a Baltimore suburb, shows the formality and precision of design, as well as conventions such as landscaped medians, which characterized the work of the Olmsted Brothers following Olmsted, Jr.'s European tour as a member of the McMillan Commission and the firm's introduction to English Garden City principles. (Photo by Greg Pease, courtesy Maryland Department of Housing and Economic Development)*

house moderate-income, working-class families and served as a model of domestic reform. The design of both the community and individual homes reflected progressive ideas that upheld the value of sunshine, fresh air, recreation, and a garden-like setting for healthy, domestic life. Unlike the spacious Olmsted-influenced curvilinear suburbs built for the rising middle class, the early Garden City influenced designs in the United States were intended to house lower-income, working-class families. The spaciousness of the American garden suburb was replaced by a careful orchestration of small gardens, courts, and common grounds shaped by the architectural grouping of dwelling units.[78]

Guilford

Guilford (1912), Edward Bouton's second large suburb for Baltimore, built adjacent to Roland Park and also laid out by Frederick Law Olmsted, Jr., applied many planned features such as radial streets, landscaped medians, cul-de-sacs, and planted circular islands to the American idiom of the residential park for the rising middle class. Integrated with public parks and landscaped streets, it attained a highly controlled artistic expression based on Garden City principles.[79]

Washington Highlands

The plan for Washington Highlands (1916) in Wauwatosa, Wisconsin, by Werner Hegemann and Elbert Peets reflected a fusion of formal and informal elements–allées of evenly spaced trees, symmetrical formal plantings, with curvilinear streets, including a major street that formed a peripheral arc and followed a low-lying stream bed that functioned as a linear park. Through *The American Vitruvius: An Architect's Handbook of Civic Art* (1922), Hegemann and Peets would exert considerable influence on the design of metropolitan areas in the United States. During the New Deal, Peets would design the Resettlement Administration's greenbelt community at Greendale, Wisconsin.[80]

World War I Defense Housing

During World War I, the short-lived United States Housing Corporation of the U.S. Labor Department and the Emergency Fleet Corporation of the U.S. Shipping Board, encouraged town planners and designers of emergency housing communities for industrial

workers to adopt Garden City models. Under the leadership of prominent planners and architects Nolen, Olmsted, Jr., and Robert Kohn, these programs encouraged the collaboration of town planners, architects, and landscape architects, and advocated a comprehensive approach to community planning. The AIA sent architect Frederick Ackerman to England to study the new garden cities with the purpose of infusing American defense housing projects with similar principles of design.

For many young designers, working on emergency housing provided an unprecedented opportunity to work on a project of substantial scale and to work collaboratively across disciplines. Dozens of projects appeared across the country in centers of shipbuilding and other defense industries. Many would serve as models of suburban design in subsequent decades. Among the most influential were Yorkship (Fairview) in Camden, New Jersey; Seaside Village in Bridgeport, Connecticut; Union Gardens in Wilmington, Delaware; Atlantic Heights in Portsmouth, New Hampshire; Hilton Village in Newport News, Virginia; and Truxtun in Portsmouth, Virginia.

Mariemont

John Nolen's town plan for Mariemont (1921), Ohio, was heralded for its achievement in integrating a variety of land uses into a well-unified community, which provided commercial zones, industrial zones, and a variety of housing types that ranged from apartment houses to large period revival homes. The plan embodied a combination of formal and informal design principles and integrated parks and common areas.

American towns and the residential suburbs that followed similar design principles were frequently hybrid plans where a radial plan of a formal core area extended outward along axial corridors, interspersed by small gridiron areas, and eventually opened outward along curvilinear streets that more closely fit the site's natural topography and followed Olmsted principles. Streets were laid out to specific widths to allow for border plantings, landscaped medians and islands, and shaped intersections that gave formality and unity to residential streets. Noted architects were invited to design houses in a variety of styles.

Mariemont received considerable recognition as a model of community planning. It was featured in Nolen's *New Towns for Old: Achievements in Civic Improvements in Some American Small Towns and Neighborhoods* (1927), which popularized suburban planning and provided a number of highly emulated models including Myers Park in Charlotte, North Carolina, initially planned by Nolen in 1911, and completed under landscape architect Earl Sumner Draper. Mariemont was also highly praised in the *Regional Survey of New York and Its Environs* (1929) and the proceedings of the 1931 President's Conference.

While providing a variety of housing types for mixed incomes, the plan for Mariemont introduced an innovative design of interweaving cul-de-sacs and avenues that accommodated a wide range of housing types from rowhouses to duplexes to spacious detached homes that were grouped into clusters serving particular income groups. Often designed by a single firm, clusters exhibited a cohesive architectural style. The plan also called for convenient commercial services at the core of the community in cohesive architectural groupings characteristic of the English garden cities. Mariemont was designed with a separate industrial zone intended to attract a number of industries. English Tudor Revival influences blended with the American Colonial Revival to form attractive housing clusters and a shopping district. In Nolen's design, tree lined streets were designed at varying widths to accentuate the village setting and accommodate transportation

Developed 1925 to 1929, Albers Place in Mariemont, Ohio, *illustrates one of planner John Nolen's conventions for organizing space to create a cohesive village setting by adopting a single architectural theme, clustering dwellings around a short court having a narrow circular drive and open central park, and unifying the space with common walls and plantings of trees and shrubs. (Photo by Steve Gordon, courtesy of the Ohio Historic Preservation Office)*

Hilton Village (1918), Newport News, Virginia, *one of the earliest and most complete examples of U.S. government-sponsored town planning during World War I. It was designed by the short-lived Emergency Fleet Corporation to house the families of defense workers at the Newport News Shipbuilding and Dry Dock Company. The community's design illustrates the close collaboration of town planner Henry V. Hubbard and architect Francis Y. Joannes. Variations in the design of roofs, entranceways, and materials in the grouping of similar house types, as well as landscape features, such as staggered setbacks and the retention of existing trees, were introduced to avoid the monotony and austerity characteristic of earlier industrial housing. (Photograph courtesy Mariners Museum, Newport News)*

within the community and the needs of each housing group.[81]

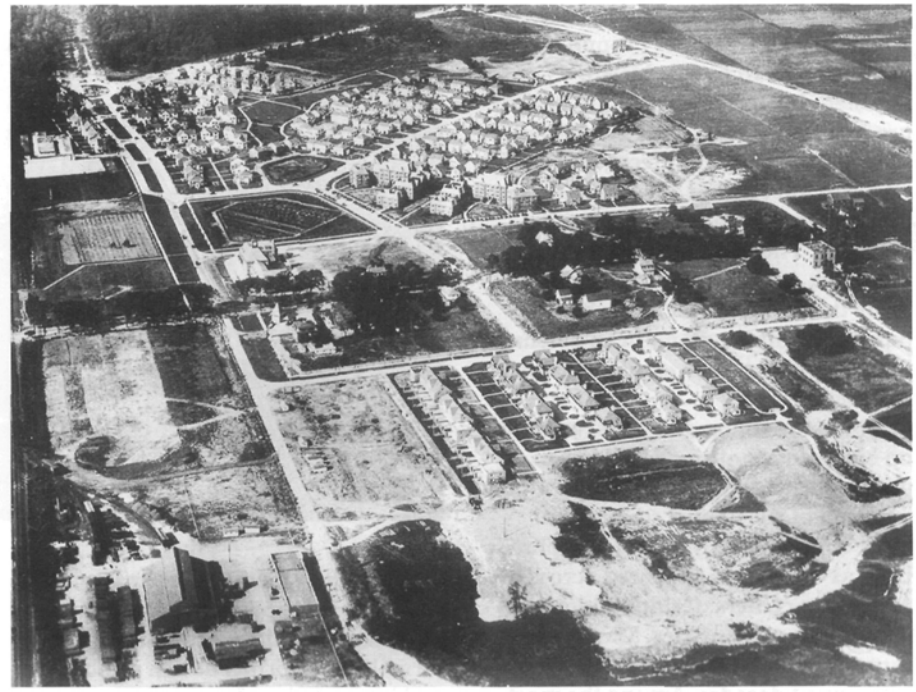
The RPAA and Sunnyside

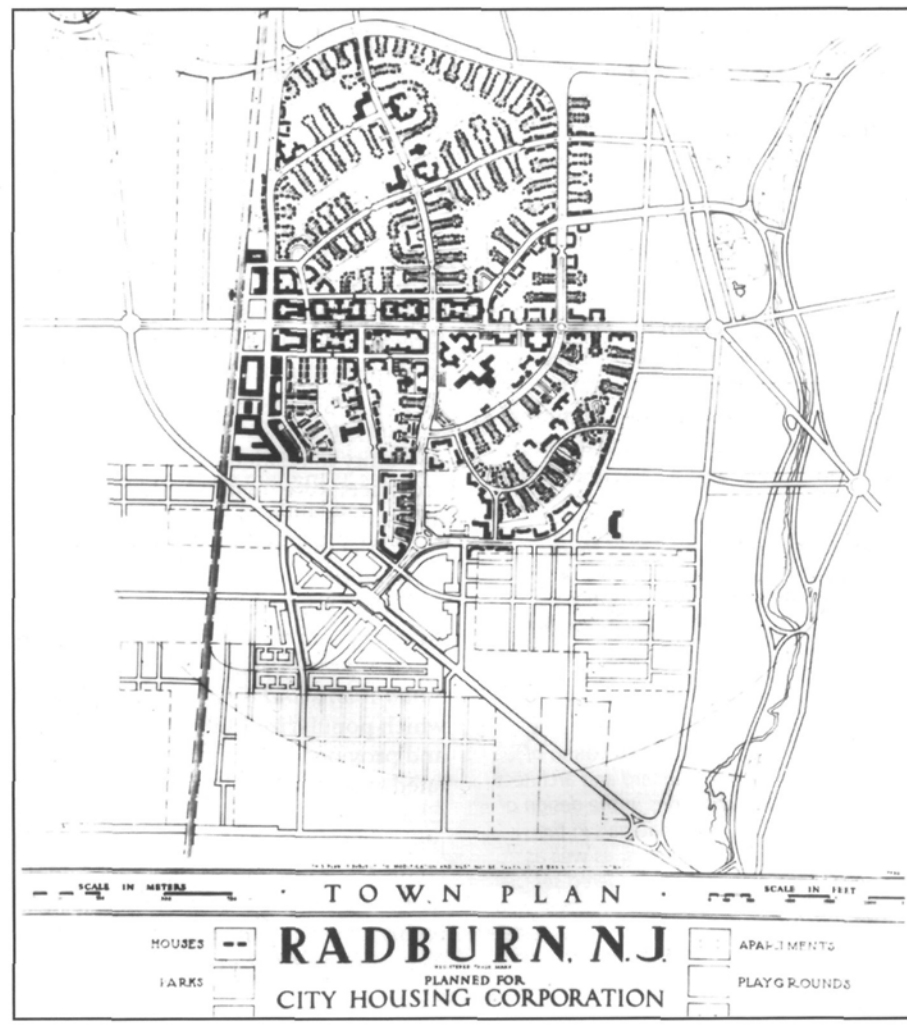
In 1923 architect-planners Clarence Stein and Henry Wright, along with Frederick Ackerman, Charles Whitaker, Alexander Bing, Lewis Mumford, Benton MacKaye, and others, founded the Regional Planning Association of America (RPAA) to promote Garden City principles as a basis for metropolitan expansion. Although the RPAA was broadly concerned with the retention of open space and agricultural zones, their practical accomplishments were focused on the creation of satellite communities that melded Garden City principles with the immediate needs of housing reform.

Its first project, Sunnyside Gardens (1924-1928), was built in Queens outside New York City as a model community for moderate-income families and funded by the City Housing Corporation, a limited dividend company formed by the RPAA and headed by Bing. Although local regulations required the designers to adhere to the gridiron street system, the location's industrial use zoning allowed them to develop each block as a single parcel instead of subdividing it into separate lots. Using architectural groupings to create alternating areas of open and closed space, the designers arranged attached single- and multiple family dwellings to form the perimeter of each block, enclosing a central common set aside for gardening and recreation.[82]

Radburn and Chatham Village

At Radburn, beginning in 1928, Stein and Wright applied Garden City planning principles to the problem of creating an attractive and healthy community of moderately-priced homes. Radburn, initially financed by the City Housing Corporation, was envisioned as a "Town for the Motor Age" derived from the Garden City principles and adapted to the practical needs of an automobile age. Located 16 miles from New York City in Fair Lawn, New Jersey, Radburn was planned as three interconnected neighborhoods each housing up to 10,000 residents. Each





(far left) ***Aerial view (c. 1930) and Town Plan (c. 1928), Radburn, New Jersey.*** *Designed by RPAA planners Clarence S. Stein and Henry Wright as a satellite Garden City for New York City, Radburn was a radical departure from the typical American suburb. Innovations included the use of superblocks having a central swathe of open park land, the grouping of residences to face gardens and grounds and back on service courts, separate circulation networks for pedestrians and automobiles, and a hierarchy of streets to reduce construction costs and ensure safety. The new town was the embodiment of Clarence Perry's Neighborhood Unit, a model for community planning presented in the* Regional Survey of New York and Its Environs *(1929) and enthusiastically endorsed by the 1931 President's Conference on Home Building and Home Ownership. (Photo and plan courtesy Division of Rare & Manuscript Collections, Cornell University Library)*

(left) ***Aerial view (1943), Chatham Village, Pittsburgh.*** *An enduring model of American Garden City planning, Chatham Village (1932-1936) resulted from a careful study of economic conditions and the collaboration of local architects Ingrahm and Boyd, landscape architects Griswold and Kohankie, and advisors Stein and Wright. Developed as both a philanthropic venture and financial investment by the Buhl Foundation, the community received high acclaim for its integration of a large number of moderately-priced rental units with spacious grounds and woodland, the artistry of its Colonial Revival styling, and its accommodation of interconnected dwellings within a steeply sloping site. (Photo by Aerial Survey of Pittsburgh Inc., courtesy Pennsylvania Historical and Museum Commission)*

neighborhood was to consist of a superblock that was served by a circulation system that separated pedestrian and automobile traffic and instituted a hierarchy of roads to reduce construction costs and promote traffic safety. A variety of house types—detached, semi-detached, row, and apartment—was integrated into the design, as well as schools, recreational facilities, and a shopping center.

Each superblock was carefully designed with an interior park or green, which served as the backbone of the neighborhood with houses fronting on it and pedestrian walks running along its length. The superblocks, merged together to form a continuous swathe of park, and underpasses were to be introduced to allow pedestrians to pass beneath the motor roads, making it possible for children to walk to school without crossing streets. Narrow cul-de-sacs penetrated each superblock from perimeter feeder streets. Houses were oriented so that living rooms and bedrooms faced private gardens and the central green, while kitchens and garages faced cul-de-sacs that provided automobile access and functioned as short service courts. Radburn's hierarchy of roads not only afforded the benefits of safety and convenience, but also significantly reduced construction costs by limiting the amount of space occupied by streets and enabling the use of smaller water and sewer mains.[83]

A philanthropic venture of the Buhl Foundation begun in 1929, Chatham Village in Pittsburgh, Pennsylvania, further refined Garden City principles and made important aesthetic and functional advances in the design of low-to-moderate income, multiple family housing. The design resulted from the collaboration of Stein and Wright, who acted as site planners and project advisors, and a team of local architects, Charles T. Ingham and William T. Boyd, and landscape architects Ralph E. Griswold and Theodore Kohankie. The designers utilized superblock planning, groups of connected dwellings efficiently adjusted to the steeply sloping site, and landscaped garden courts that blended with natural ravines and woodland that surrounded the community on three sides. The project represented the ultimate fusion of Garden City planning and Colonial Revival design and received international acclaim as a highly successful model of Garden City planning. It served as an enduring model for large-scale, FHA-insured rental communities in the 1930s and 1940s.[84]

The Neighborhood Unit and the 1931 President's Conference

Radburn exemplified the Neighborhood Unit Formula, developed by Clarence Perry of the Russell Sage Foundation, and incorporated in Volume 7, "Neighborhood and Community Planning," of the 1929 *Regional Survey of New York and Its Environs.* Perry's formula called for the creation of communities large enough to support an elementary school, preferably about 160 acres with ten percent reserved for recreation and park space. Interior streets were to be no wider than required for their use with cul-de-sacs and side streets being relatively narrow. Community facilities were to be centrally located, and a shopping

district was to be located on the edge of the community where neighborhood streets joined the main arterials. Perry's concept was overwhelmingly endorsed at the 1931 President's Conference and laid a solid foundation for the development of FHA standards in the 1930s.[85]

The recommendations of the 1931 President's Conference for the design of residential neighborhoods reflected widespread acceptance of the idea of community planning and Perry's concept of the self-contained neighborhood unit. Mention was made of the advances made in the 1920s, and Radburn was praised for "producing desirable homes with ample open spaces at reasonably low cost." Such planning served two purposes–the grouping of homes into "reasonably compact residential neighborhoods with spaciousness for health and recreation," and creating "sub-centers for industry" with the object of "lessening the density of congested centers." The report stated:

> Stability of investment in a home is best assured when the subdivision is a community or neighborhood unit, which is amply protected by deed restrictions that supplement the zoning regulations, developed by real estate dealers of proved ability, and in which there is a strong homes association permanently concerned with the welfare of the neighborhood.[86]

Location was to be selected for "good access, good setting, public services, schools, parks and neighborhood unity," and subdivision plats were to be developed by an experienced landscape engineer or site planner and were to follow a "balanced plan" that took advantage of "topography, sunlight, natural features, and all sensible engineering and landscape considerations."[87]

Streets were to be designed for safety and economy and drawn at varying widths depending on the required setbacks, with deeper setbacks allowing for narrower streets. For example, a 60-foot width allowed for a 26-foot roadway and a sidewalk of four to six feet. The size and shape of lots were to be determined by the proposed type of housing, with the width of each lot depending on the size and character of the buildings, cost of the land, community tradition, and potential home owner. The use of longer blocks with fewer cross streets and the subdivision of land into wide, shallow lots were encouraged, departing from previous practices. Homes were to be "located upon narrow winding streets away from the noise and dangers of traffic" and to have proper orientation for sunlight.[88]

Spaciousness was upheld as a "primary principle in good subdivision layout." The ideal neighborhood was described as one protected by proper zoning regulations, where trees and the natural beauty of the landscape were preserved, and where streets were gently curving and adjusted to the contour of the ground. Open space was viewed as one of the most important considerations for home ownership. It could be achieved in three ways: (1) by subdividing into large lots, (2) by reserving large open areas in the interior of blocks, or (3) by creating parks, playgrounds, or large private spaces nearby. [89]

FHA Principles for Neighborhood Planning

The National Housing Act of 1934 created the Federal Housing Administration to restructure the collapsed private home financing system and stimulate private investment in housing. It called for the development of housing standards, a process for real estate appraisal, and a comprehensive program of review for approving subdivisions for mortgage insurance.

Neighborhoods of Small Houses

FHA's Land Planning Division under Seward H. Mott, an experienced site planner, was responsible for establishing principles for neighborhood planning and for reviewing subdivision plans submitted by developers seeking FHA approval. This approval would not only enable developers to secure private financing but would also make low-cost mortgages available for prospective home owners. Mott's staff translated many of the prevailing ideas about neighborhood design that had been endorsed by the 1931 President's Conference, including Perry's Neighborhood Unit Formula, into written standards and basic design principles that could be uniformly applied across the Nation to the design of neighborhoods of small houses. Between 1936 and 1940, FHA published standards and recommended designs in a series of circulars, including *Subdivision Development, Planning Neighborhoods for Small Houses, Planning Profitable Neighborhoods,* and *Successful Subdivisions.*[90]

The FHA set forth seven minimum requirements for new subdivisions:

1. Location exhibiting a healthy and active demand for homes.
2. Location possessing a suitable site in terms of topography, soil condition, tree cover, and absence of hazards such as flood, fog, smoke, obnoxious odors, etc.
3. Accessibility by means of public transportation (streetcars and buses) and adequate highways to schools, employment, and shopping centers.
4. Installation of appropriate utilities and street improvements (meeting city or county specifications), and carefully related to needs of the development.
5. Compliance with city, county or regional plans and regulations, particularly local zoning and subdivision regulations to ensure that the neighborhood will become stable (and real estate values as well.)
6. Protection of values through "appropriate" deed restrictions (including setbacks, lot sizes, minimum costs of construction).
7. Guarantee of a sound financial set up, whereby subdividers were financially able to carry through their sales and development program, and where taxes and assessments were in line with the type of development contemplated and likely to remain stable.

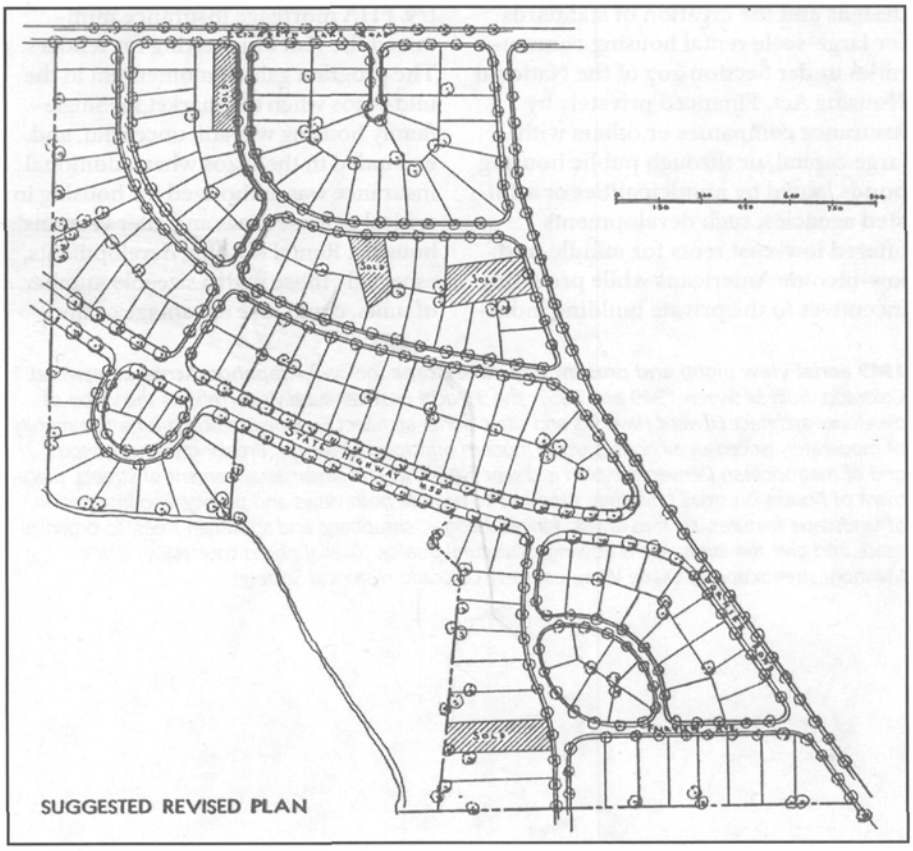
In addition, FHA issued a set of "desirable standards," which, although not strict requirements, were additional factors that influenced the approval of a project.

- Careful adaptation of subdivision layout to topography and to natural features
- Adjustment of street plan and street widths and grades to best meet the traffic needs
- Elimination of sharp corners and dangerous intersections
- Long blocks that eliminated unnecessary streets
- Carefully studied lot plan with generous and well-shaped house sites
- Parks and playgrounds
- Establishment of community organizations of property owners
- Incorporation of features that add to the privacy and attractiveness of the community.[91]

In 1936, FHA published *Planning Neighborhoods for Small Houses* as "a subdivision primer" setting forth standards for the design of new subdivisions that provided safe, livable neighborhoods and ensured stable real estate conditions that justified mortgage lending and FHA mortgage insurance. The FHA encouraged large-scale operations, where development was financed and carried out under the direction of an "operative builder" who arranged for the purchase of land, the design of the subdivision plat, and the design and construction of the houses. Such large-scale operations offered a "broader and more profitable use of capital" and permitted the introduction of "industrial methods that resulted in savings in overhead, construction, and merchandising costs." Developers were able to develop neighborhood plans in a consistent and harmonious manner, and in addition develop "commercial services such as retail stores and gasoline stations necessary to the life of the new community."[92]

To Seward Mott, who headed FHA's Land Planning Division, the legislation's mandate provided an opportunity to redirect the design of suburban America and to create conditions that would force public officials and planners alike to adopt planning measures and to abandon the rectilinear grid in favor of plans of curvilinear streets. Curvilinear plans had many advantages when compared to rectilinear gridiron plans: they provided greater privacy and visual interest; could be adapted to greater variations in topography; reduced the cost of utilities and road construction; and, by eliminating the need for dangerous four-way intersections, provided a safer environment for domestic activities.[93]

The curvilinear layouts recommended by FHA in the 1930s set the standards for the design of post-World War II subdivisions. They evolved from Garden City suburbs such as Seaside Village and Radburn, and the organic curvilinear designs of the nineteenth-century Picturesque suburbs. Highly influential were Olmsted and Vaux's Riverside, with its spacious plan of undulating and recessed, curvilinear streets, and Roland Park with its careful subdivision of land based on topography and the development of curvilinear streets that joined at oblique and acute angles and ended in cul-de-sacs in hollows or on hillside knolls. By the 1930s, such principles of design had been absorbed into the mainstream practices of the landscape architectural profession.



FHA redesigned plan for a subdivision near Pontiac, Michigan, *from* Planning Profitable Neighborhoods *(1938). FHA's curvilinear plan featured irregularly shaped blocks of evenly-sized house lots and the integration of long, sweeping feeder streets punctuated by narrow courts, circles, and cul-de-sacs. Such plans discouraged through traffic, eliminated dangerous four-way intersections, and reduced the cost of constructing roads and utilities. (Plan courtesy Library of the U.S. Department of Housing and Urban Development)*

FHA-Approved Garden Apartment Communities

Through its Large-Scale Rental Housing Division in the 1930s, FHA became involved in the approval of

designs and the creation of standards for large-scale rental housing communities under Section 207 of the National Housing Act. Financed privately by insurance companies or others with large capital, or through public housing bonds issued by municipalities or affiliated agencies, such developments offered low-cost rents for middle-and low-income Americans while providing incentives to the private building industry. FHA mortgage insurance minimized the risk of investing for lenders. The program gained momentum in the mid-1930s when the market for single-family housing was still uncertain, and expanded in the 1940s when additional insurance was authorized for housing in critical defense areas and later veterans' housing. Rental housing developments, especially those with a sizeable number of units, could take advantage of the economies of large-scale production and the use of standardized components.

FHA architect Eugene Henry Klaber worked closely with operative builders, many of whom hired architects and landscape architects to ensure that approved projects were efficiently designed cost-wise, had a solid plan for management, and were likely to materialize into sound, long-term investments. Efficiency of design required that each housing community be built at a large enough scale to take advantage of the savings offered by superblock planning and the use of standardized materials and methods. Most of these communities incorporated two- and three-story, multiple family dwellings in a variety of floor plans, often having private entrances and sometimes intermingled

1949 aerial view *(right)* ***and present day streetscape*** *(below)*, ***Arapahoe Acres,*** *Englewood, Colorado. Built between 1949 and 1957, the 33-acre postwar subdivision reflects the vision of developer-architect Edward Hawkins and site planner-architect Eugene Sternberg for a community of moderately-priced small houses using modern principles of design. Breaking the ubiquitous grid of metropolitan Denver, the plan is distinctive for its curvilinear arrangement of streets, placement of houses on small uniformly sized lots to provide both views and privacy, and integration of landscape features, such as lawns, fences, hedges, shrubbery, and specimen trees, to organize space and give the landscape a flowing, sculptural quality. (Aerial photo courtesy of Clyde Mannon; streetscape by Diane Wray, courtesy Colorado Historical Society)*

with rowhouse or duplex units. A suburban location and neighborhood amenities further contributed to the stability of real estate values and protected the investment of lenders. In 1940, the FHA issued a series of "Architectural Bulletins," which provided economical and efficient designs for all aspects of multiple family house design, from the layout of kitchens to the planting of common areas.[94]

Many of the reforms and concerns for safety that the RPAA had introduced at Sunnyside, Radburn, and Chatham Village were carried over into the design of apartment communities. These included: the arrangement of housing units to afford privacy, sunlight, and fresh air; separation of internal pedestrian circulation from perimeter motor traffic; and provision of landscaped gardens and grounds away from the noise and activity of major arterial streets. Housing units in developments such as Colonial Village in Arlington, Virginia, were carefully arranged to fit the existing topography and designed to provide visual appeal, variety, and a village-like atmosphere.[95]

Such designs would provide attractive dwellings at a higher density and lower cost than neighborhoods of single family homes. To achieve the highest standards of safety and quiet, the standards for projects containing several hundred units called for the development of superblocks with garden courts, ample throughways with pedestrian underpasses and walkways, parking and garage compounds, centralized trash stations, and the elimination of service alleys. Clearance between buildings was carefully considered to provide adequate light, free circulation of air, and privacy. A maximum height of three stories was recommended unless elevators could be provided. Landscaping around foundations, common areas, and the circulation network, was recommended depending on rental costs and project's capitalization. In addition to playgrounds and common areas, larger developments included stores, recreation centers, and medical offices.[96]

The Postwar Curvilinear Subdivision

Through FHA's publication of standards for neighborhood planning and its comprehensive review and revision of subdivisions for mortgage approval, curvilinear subdivision design became the standard of both sound real estate practice and local planning. As FHA-backed mortgages supported more and more new residential development on the edge of American cities, local planning commissions adopted some form of the FHA standards as subdivision regulations. Thus, by the late 1940s, the curvilinear subdivision had evolved from the Olmsted, City Beautiful, and Garden City models to the FHA-approved standard, which had become the legally required form of new residential development in many localities in the United States. Based on the Garden City idea, the greenbelt communities built by the U.S. government under the Resettlement Administration during the New Deal became models of suburban planning, incorporating not only the Radburn Idea but also the FHA standards for neighborhood design.[97]

The curvilinear subdivision layout was further institutionalized as the building industry came to support national regulations that would standardize local building practices and reduce unexpected development costs. One of the most influential private organizations representing the building industry was the Urban Land Institute (ULI), established in 1936 as an independent nonprofit research organization dedicated to urban planning and land development. Sponsored by the National Association of Real Estate Boards (NAREB) and serving as a consultant to the National Association of Home Builders (NAHB), ULI provided information to developers about community developments that supported land-use planning and promoted the idea of metropolitan-wide coordination as an approach to development.[98]

In 1947 the ULI published its first edition of the *Community Builder's Handbook.* Providing detailed instructions for community development based on the curvilinear subdivision and neighborhood unit approach, it became a basic reference for the community development industry and, by 1990, was in its seventh edition. In 1950 the NAHB, the primary trade organization for the industry, published the *Home Builders' Manual for Land Development.*

Thus, by the late 1940s, the concept of neighborhood planning had become institutionalized in American planning practice. This form of development, in seamless repetition, would create the post-World War II suburban landscape.

THE DESIGN OF THE SUBURBAN HOME

The central motivation for the invention of the suburban house was the desire of Americans to own a single-family house in a semi-rural environment away from the city—what would become the American dream. Several factors influenced the evolution of suburban house design:

- The lowering of construction costs, accomplished with the invention of the balloon-frame method of construction in the 1830s and successive stages of standardization, mass production, and prefabrication.
- The translation of the suburban ideal into the form an individual dwelling usually on its own lot in a safe, healthy, and parklike setting.
- The design of an efficient floor plan believed to support and reinforce the ideal family.

The evolution of the American home reflects changing concepts of family life and the ideal suburban landscape. From 1838 to 1960, the design of the single-family, detached suburban home in a landscaped setting evolved in several broad stages from picturesque country villas to sprawling ranch houses on spacious suburban lots.

The Suburban Prerequisite: The Invention of the Balloon Frame

The widespread adoption of the balloon-frame method of construction, invented in Chicago in the 1830s, along with the invention of wire nails and the circular saw, transformed the character of American housing in the mid-nineteenth century. The lightweight balloon frame consisted of narrow wooden studs and larger joists arranged in a box-like configuration capable of absorbing load-bearing stresses. In comparison to traditional post-and-beam and masonry methods, balloon framing could be quickly assembled at a lower cost with fewer and less experienced workers. Allowing considerable freedom of design in both exterior massing and interior layout, it was well-suited for building homes in the Romantic Revival and Picturesque styles that were coming into vogue in the mid-nineteenth century.[99]

Rural Architecture and Home Grounds, 1838 to 1890

The suburban home first appeared as a rural villa for the fairly well-to-do family in the mid-nineteenth century. Located "on the edge of the city," it was intentionally designed as a therapeutic refuge from the city, offering tranquility, sunshine, spaciousness, verdure, and closeness to nature—qualities opposite those of city. This ideal was aggressively and persuasively articulated through pattern books, the writings of domestic reformers, and popular magazines. As house designs became adapted for more modest incomes and as advances in transportation lowered the cost of commuting, suburban living became affordable to an increasingly broad spectrum of the population.

Early Pattern Books

Alexander Jackson Davis's *Rural Residences* (1838) marked the transition from builders' guides, which focused on techniques of joinery and architectural detailing, to a new generation of pattern books. Pattern books were directed at the prospective home owner and featured plans and elevations for ornamented villas and cottages in a variety of romantic revival styles all set in a semi-rural, village setting. Catharine E. Beecher's *Treatise on Domestic Econ-omy* (1841) called for domestic reform, promoting the idea that rural living was ideally suited for family life, and offering elevations and floor plans for simple houses designed for efficiency and family comfort. With the publication of *Cottage Residences* (1842) and *Architecture of Country Houses* (1850), Andrew Jackson Downing soon after popularized a market for pattern books that offered a variety of house types and styles suited for country or village living.

Downing gave detailed architectural expression to the ideal of living in a semi-rural environment, offering designs for villas for the well-to-do and less expensive cottages for lower-income households. Through designs that conformed to a romantic aesthetic for the "beautiful" or the "picturesque," Downing promoted revival styles described as "Italianate," "Tudor Revival," "Bracketed," "Swiss," "Gothic Revival," and "Tuscan." His books also illustrated decorative architectural elements, such as brackets and vergeboards, that could be crafted by most country builders to embellish the simplest home.[100]

Pattern books appeared by a number of architects, including Calvert Vaux, A. J. Bicknell, George E. Woodward, Orson Squire Fowler, William H. Ranlett, and Gervase Wheeler. *Godey's Lady's Book,* a popular magazine, also offered its readers designs for rural villas and cottages, thereby establishing the important role of periodicals in fostering domestic reform and affecting popular taste.[101]

Landscape Gardening for Suburban Homes

Downing's *Treatise on the Theory and Practice of Landscape Gardening* (1841) was the first American published guide for laying out and planting domestic grounds. A nurseryman by trade, Downing fostered an avid interest in horticulture, encouraging home owners to enhance village streets and domestic grounds with plantings drawn from the vast numbers of native and exotic trees and shrubs becoming available in the United States. His books offered simple layouts, extensive

instructions, and plant lists for landscaping villas and cottages, often on modestly-sized rectangular parcels of land. To Downing, even the smallest domestic yard was a pleasure ground that offered a sense of enclosure and privacy from the outside world and could be developed with curvilinear paths, lawns, overlooks, tree plantations, specimen trees, and a variety of gardens.

Instructions and site plans for embellishing the grounds of suburban homes appeared regularly in a number of periodicals, including *The Horticulturalist, Hovey's Magazine of Horticulture*, and *Garden and Forest*. Between 1856 and 1870, plan books appeared by a number of other landscape gardeners, including Henry W. Cleaveland, Robert Morris Copeland, George E. and F. W. Woodward, and Jacob Weidenmann.[102]

Frank J. Scott was among the first to recognize that the new homes being built outside cities formed neighborhoods that were suburban, not rural, in character. His comprehensive landscape manual, *Art of Beautifying Suburban Home Grounds of Small Extent* (1870), was intended to help the middle-class home owner achieve beautiful landscape effects that were low in cost and easy to maintain, including graded lawns, ornamental trees and shrubs, and foundation plantings. His influence was extensive, and by the 1870s, suburban streets began to take on a unified landscape character with paved roads, shade trees, entry walks, fences, and stairways, giving definition to the ideal suburban landscape.[103]

Queen Anne cottage *(1904) in the Harrison Boulevard Historic District, Boise, Idaho, represents one of the city's modest "home-dwellings," typically built by local builders. The imaginative treatment of houses to face street corners and the presence of mature street trees reflect a vernacular expression of landscape design. (Photo by Duane Garrett, courtesy Idaho State Historic Preservation Office)*

Eclectic House Designs and Mail Order Plans

After the Civil War, a new generation of pattern books appeared offering greater variety and complexity in house design and plans well-suited to suburban house lots. Henry Hudson Holly's *Modern Dwellings in Town and Country, Adapted to American Wants and Climate* (1878) was among the first to advocate architectural eclecticism in which visual and artistic effects—in the design of chimneys, gables, and porches, for example— became important aspects of stylistic appeal. Such books popularized late nineteenth-century styles including the Shingle, Stick, Eastlake, Second Empire, and Queen Anne Revival styles.[104]

Mail order services further democratized home building and added variety and complexity to Victorian-era house design. *Model Homes for the People, A Complete Guide to the Proper and Economical Erection of Buildings* (1876) was the first in a series of best-selling, inexpensive catalogs by George and Charles Palliser which offered detailed architectural plans by mail for a small fee. The *Ladies' Home Journal*, under the editorship of Edward Bok beginning in 1889, and a host of catalogs by architects George F. Barber, Robert W. Shoppell, William A. Radford, and others similarly made available architect-designed plans for a nominal cost. This practice continued in the twentieth century, carried on by architect-sponsored small house service bureaus and stock plan companies, such as Garlinghouse of Topeka, Kansas.[105]

The Homestead Temple-House

Working-class families sought separation from the city and privacy from neighbors in modest, detached homes on the narrow, rectangular lots of gridiron subdivisions. By the 1860s, a free-standing house type, the "homestead temple-house," gained popularity in the rapidly growing industrial cities of the Northeast and Midwest. Derived from the earlier Greek Revival house and typically adorned by a stylish doorway or colonnaded porch, the house was turned so that the gabled end faced the

(above) ***A regional expression of the "homestead temple-house,"*** *the simple one-story shotgun houses (c. 1925) in the Rocksprings Shotgun Row Historic District were built to house African American laborers who settled in Athens, Georgia, following World War I. (Photo by James R. Lockhart, courtesy Georgia Department of Natural Resources)*

(far left) ***Gothic Revival house designed by James H. McGill*** *for LeDroit Park in Washington, DC, exemplifies the romantic revival designs promoted by mid-nineteenth-century pattern books, such as Andrew Jackson Downing's* Cottage Residences *(1842) and* The Architecture of Country Houses *(1850). Developed between 1873 and 1877, LeDroit Park was originally planned as an architecturally unified subdivision of detached and semi-detached houses, many designed by McGill, an enterprising architect who advertised his services through the publication of* LeDroit Park Illustrated *(1877) and* Architectural Advertiser *(1879). (Photo by Jack E. Boucher, courtesy Historic American Buildings Survey)*

(left) ***Brick row houses*** *(c. 1882) in Queen Anne style designed for working-class families (many immigrants from Germany and Ireland) in the William D. Bishop Cottage Development (c. 1840-1894), Bridgeport, Connecticut. Attributed to George and Charles Palliser, houses exhibit the eclecticism and complexity of design for which the architects became known through a series of inexpensive catalogs, such as* Model Homes for the People *(1876), which offered detailed architectural drawings that could be purchased by mail for a small fee. (Photo by D. Palmquist, courtesy Connecticut Historical Commission)*

street and the floor plan extended deeply into the lot.[106]

The popularity of this house type persisted throughout the nineteenth century, allowing working-class families to live in suburban neighborhoods close to railroad stations and later along streetcar routes. It appeared in several forms from a simple one-story, "shotgun" home in the South to the double- and triple-decker multiple family dwellings of the Northeast, this type assumed a variety of architectural styles ranging from Classical and Gothic Revivals to Italianate and Queen Anne Revival. The crowded and repetitious character of such neighborhoods would attract the criticism of twentieth-century reformers.

The Practical Suburban House, 1890 to 1920

The expansion of streetcar transportation in American cities coincided with fundamental changes in the perception of the ideal family and a revision of what constituted the best suburban home. Progressive ideals emphasizing simplicity and efficiency called for house designs that reflected less hierarchical relationships, technological innovations, and a more informal and relaxed lifestyle.[107]

New subdivisions provided utilities and amenities not available elsewhere. In many places, they benefitted from the street improvements, park and boulevard systems, and public utility systems that resulted from the City Beautiful movement and an emerging interest in city planning as the means for Progressive reform.

Technological innovations introduced to improve household life—central heating, gas hot water heaters, indoor plumbing, and electricity—entailed expensive mechanical systems that increased the cost of construction. The reduction of floor space and the use of standardized plans helped offset the rising cost of home construction and put home ownership within reach of more Americans. First appearing in the 1890s, the bungalow reflected the desire for an affordable single-family house for households without servants. These houses, and a somewhat large type known as the foursquare, were sold by catalog and became the first mass-produced houses in the United States.[108]

The Open Plan Bungalow

By 1910, the bungalow had become the ideal suburban home and was being built by the thousands, giving rise to what has been called the "bungalow suburb." The typical bungalow was a one- or one-and-a-half-story house having a wide, shallow-pitched roof with broad overhanging eaves. The interior featured an open floor plan for family activities at the front of the house and private bedrooms at the back or upstairs. The wide open front porch, a distinctive feature of the ideal bungalow, provided a transition between interior and outdoors.[109]

The design of the bungalow was influenced by the Prairie School movement of the Midwest, the California Arts and Crafts movement, and a number of vernacular housing types. Part of the bungalow's appeal was its adaptation of these and other architectural influences in the form of a small comfortable house. The suburban bungalow—in styles ranging from English Cottage styles to the Mission Revival style of the Southwest—was popularized nationwide by periodicals such as *Western Architect, Ladies' Home Journal, Craftsman,* and *Bungalow Magazine.* Numerous catalogs and books appeared, many in multiple editions, including William A. Radford's *Artistic Bungalows* (1908), Henry L. Wilson's *Bungalow Book* (1910), Henry H. Saylor's *Bungalow Book* (1911), H. V. Von Holst's *Modern American Homes* (1913), Gustav Stickley's *Craftsman Homes* (1909) and *More Craftsman Homes* (1912), and Charles E. White's *Bungalow Book* (1923).

The American Foursquare

The American foursquare made its appearance in the 1890s, and by the 1930s, was a fixture of American neighborhoods. A typical foursquare was a two-and-one-half-story house having a raised basement, one-story porch across the front, and plan of four evenly sized rooms on each floor. Often crowned with a pyramidal roof and dormers, the foursquare appeared in a variety of architectural styles, the most popular being the Colonial Revival.[110]

Factory Cut, Mail Order Houses

The availability of complete, factory cut homes, which could be ordered by mail from illustrated catalogs, was largely responsible for the widespread popularity of the bungalow and foursquare. The Hodgson Company of Dover, Massachusetts, was one of the first to market factory cut dwellings, sheds, and cottages. During the first decade of the twentieth century, several companies—Aladdin of Bay City, Michigan; Sears and Roebuck; and Montgomery Ward—began to market pre-cut homes that could be shipped by railroad and assembled on site. This trend grew in popularity and at the height of its popularity in the 1920s the industry included a host of other companies, including the Gordon-Van Tine Company of Davenport, Iowa, and Pacific Ready-Cut of Los Angeles.

The success of mail order home building depended on inexpensive transportation, vast selection of housing types and prices, financial arrangements where home owners could pay in installments, and marketing programs whereby designs were constantly being revised and retired as new ones reflecting changing popular taste were introduced. Thousands of pre-cut houses were sold and shipped annually. Sears alone offered approximately 450 ready-to-build designs ranging in style, type, and size from small bungalows to multiple family apartment houses. Sears's sales reached 30,000 by 1925 and nearly 50,000 by 1930.[111]

Introduction of the Garage

Shelter for the automobile became an increasingly important consideration after 1900. Driveways were readily accommodated in the progressive design of new neighborhoods having road improvements such as paved surfaces, gutters and curbs, and sidewalks. The earliest garages were placed behind the house at the end of a long driveway that often consisted of little more than

a double tract of pavement. By the end of the 1920s, attached and underground garages began to appear in stock plans for small homes as well as factory-built houses. Among the earliest homes with built-in garages were the detached and semi-detached models designed by architect Frederick Ackerman in 1928-1929 for Radburn, New Jersey. The design of an expandable two-story house with a built-in garage and additional upper-story bedroom was introduced by the FHA in 1940. By the 1950s, garages or carports were integrated into the design of many homes.[112]

Keith's Magazine, Carpentry and Building, Building Age, and *American Carpenter and Builder* were among the first magazines to offer instructions for building garages. William A. Radford is credited with popularizing the term "garage" and introducing the first catalog devoted to the type in 1910. Manufacturers of pre-cut homes, such as Aladdin Homes, began to offer a variety of mail order garages, often matching the materials and styles of popular house types.[113]

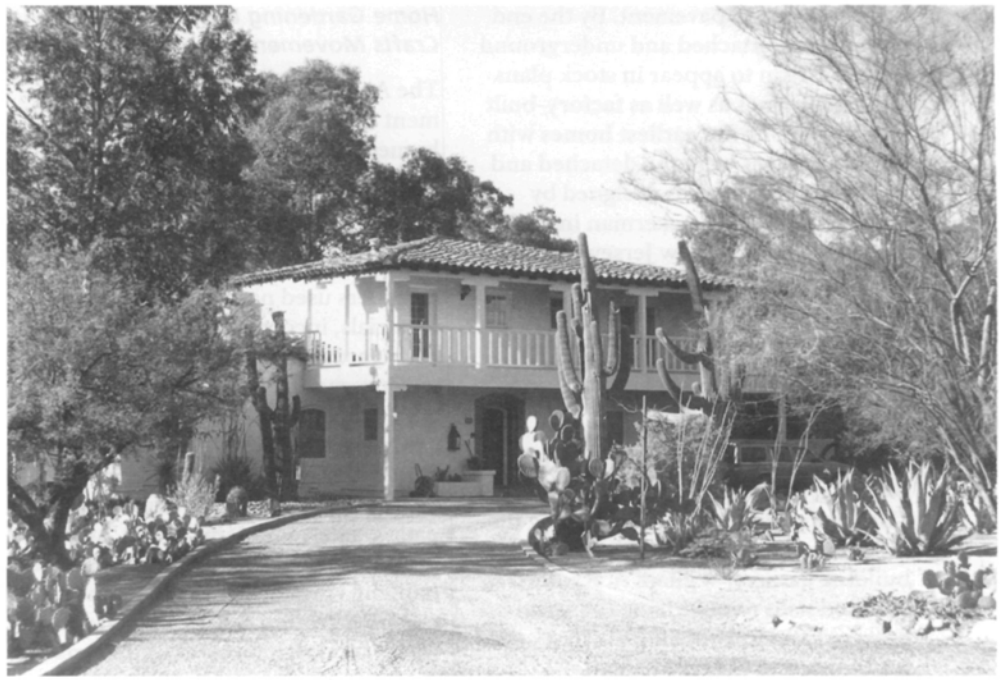
Home Gardening and the Arts and Crafts Movement

The American Arts and Crafts movement spurred an avid interest among homeowners in gardening and a desire to integrate a home's interior space with its outdoor surroundings. To unify house and garden and integrate indoor and outdoor living, many bungalow designers used natural construction materials, incorporated porches and courtyards into their designs, and encouraged the arrangement of yards with simple terraces, rustic paths, and garden rooms. Periodicals such as *The Craftsman* featured articles for embellishing the grounds of bungalows with patios, gates, fountains, pools, arbors, pergolas, and rockery. Features such as hanging vines, water gardens, and creeping ground covers added to the variety and rich textures of the Arts and Crafts garden.

Books by landscape architects educated home owners about domestic yard design; these included Ruth B. Dean's *The Liveable House, Its Garden* (1917), Herbert J. Kellaway's *How to Lay Out Suburban Home Grounds* (1907 and 1915), Elsa Rehmann's *The Small Place: Its Landscape Architecture* (1918), and Grace Tabor's *Gardening Book* (1911), *Making the Grounds Attractive with Shrubbery* (1912), *Suburban Gardens* (1913), and *Planting Around the Bungalow* (1914). Plan books such as Eugene O. Murmann's *California Gardening* (1914) provided gardening advice, planting plans, and plant lists for home owners according to local climate and growing conditions.

Garden writing flourished in popular magazines, such as *Ladies' Home Journal, House and Garden, Country Life in America, House Beautiful, Garden Magazine,* and *Woman's Home Companion.* Garden columns—by Frances Duncan, Wilhelm T. Miller, and Grace

Compound garages *flanking a central service court accommodated automobiles in Greenbelt, Maryland, one of three planned Garden City communities built by the Federal Resettlement Administration during the New Deal. (Photo by Elizabeth Jo Lampl, courtesy National Historic Landmarks Survey, NPS)*



(right) ***A Monterey Revival house with garden of desert plants*** *in Tucson's Colonia Solana Historic District, which was platted in 1927 and developed with the expertise of landscape architect Stephen Child. Inspired by the native landscape, Child used naturalistically curving lines and native plants in his designs for both individual home grounds and neighborhood streets. (Photo by Larry Wilson, courtesy Arizona Office of Historic Preservation)*

(bottom) ***Present day view across one of Radburn's interior parks*** *illustrates mature plantings of native trees and shrubs designed in the late 1920s by landscape architect Marjorie Sewell Cautley and homes in the popular revival styles of the period by "small house" architect Frederick Ackerman. Stein and Wright's vision for a garden city called for the integration of landscape and architecture into a unified design and required the collaboration of designers having special areas of expertise. (Photo by Paula Reed, courtesy National Historic Landmarks Survey, NPS)*

Tabor—and articles by noted designers, nursery keepers, and amateur gardeners, showcased successful gardens, provided horticultural information, and offered gardening advice.[114]

Horticulturalist Liberty Hyde Bailey of Cornell University bridged the gap between science and practical landscape gardening. As editor of *Country Life in America* and author of *Garden-Making: Suggestions for the Utilizing of Home Grounds* (1898) and *The Practical Garden Book* (1904), he translated his extensive botanical knowledge into simple principles for suburban gardeners.[115]

With the publication of Helena Rutherford Ely's *A Woman's Hardy Garden* in 1903, Victorian practices of carpet bedding and lush displays of exotic plantings gave way to simpler gardens featuring harmonies of color, seasonal changes, and perennial displays. Numerous books by successful amateur gardeners followed including, Louise Shelton's *The Seasons in a Flower Garden* (1906), Louise Beebe Wilder's *Colour in My Garden* (1918), and Nellie Doubleday's *American Flower Garden* (1909) written under the pseudonym Neltje Blanchan.[116]

Better Homes and the Small House Movement, 1919 to 1945

After World War I, improving the quality of American domestic life took on special importance. Alliances formed among architects, real estate developers, builders, social reformers, manufacturers, and public officials—at both national and local levels—to encourage home ownership, standardized home building practices, and neighborhood improvements.

The Better Homes Campaign

Better Homes in America, Inc., a private organization founded in 1922, spearheaded a national campaign for domestic reform focused on educating homeowners about quality design and construction. Promoted by *The Delineator,* a popular Butterick publication for women, the organization gained the support of U.S. Secretary of Commerce Herbert Hoover and formed a nationwide network of local committees that encouraged both the construction of new homes and home remodelling projects. A national demonstration home, "Home Sweet Home," a modernized version of songwriter John Howard Paynes's Long Island birthplace, was constructed on the National Mall in 1923, and "Better Homes Week" activities and competitions were held nationwide. Annual competitions recognized the work of architects, such as Royal Barry Wills of Boston and William W. Wurster of San Francisco, whose small house designs would influence popular taste nationwide for homes described as New England Colonial or Monterey Revival.[117]

Architect-Designed Small Houses

The Small House Architects' Service Bureau was established in Minneapolis in 1919 with the purpose of providing architect-designed plans and technical specifications to builders of small houses. A "small house" was defined as one having no more than six rooms. Sponsored by the AIA, the bureau was a nonprofit organization made up of architects from all parts of the country devoted to the problem of designing small homes in a variety of popular forms and styles. Home builders could order complete working drawings from *The Small House,* a periodical, or plan catalogs such as *Small Homes of Architectural Distinction* (1929). The bureau endeavored to raise the public's awareness of the value of professional design and encouraged homeowners and builders to secure a local architect to supervise construction.[118]

In New York, the Home Owners Service Institute, headed by architect Henry Atterbury Smith in the 1920s, ran the weekly "Small House Page" of the Sunday *New York Tribune,* sponsored local design competitions and model home demonstrations, and published *The Books of A Thousand Homes* (1923). The institute raised the variety and quality of American homes by disseminating a large number of working drawings and plans nationwide—all the work of professional architects such as Frederick L. Ackerman and Whitman S. Wick—and forming alliances with private trade groups and manufacturers, including the American Face Brick Association, Curtis Woodwork Company, and National Lumber Manufacturers Association.[119]

Popular magazines—including *Better Homes and Gardens, American Home, House and Garden, Garden and Home Builder, McCall's,* and *Sunset*—reflected the growing interest in home improvement and appealed increasingly to owners of small homes. They carried articles on new house designs, interior decoration, and gardening, as well as advertisements for the latest innovations in manufactured products. Trade pamphlets such as Richard Requa's *Old World Inspiration for American Architecture* by the Monolith Portland Cement Company of Los Angeles reflected emerging alliances between the building industry and designers interested in promoting regional trends.

The small house of the 1920s appeared in many forms and a variety of bungalow and period revival styles, the most popular being drawn from the English Tudor Revival and a host of American Colonial influences, including Dutch, English, French, and Spanish. The movement resulted in a great diversity of architectural styles and types nationwide as regional forms and the work of regional architects attracted the interest of an increasingly educated audience of prospective home owners.

Federal Home Building Service Plan

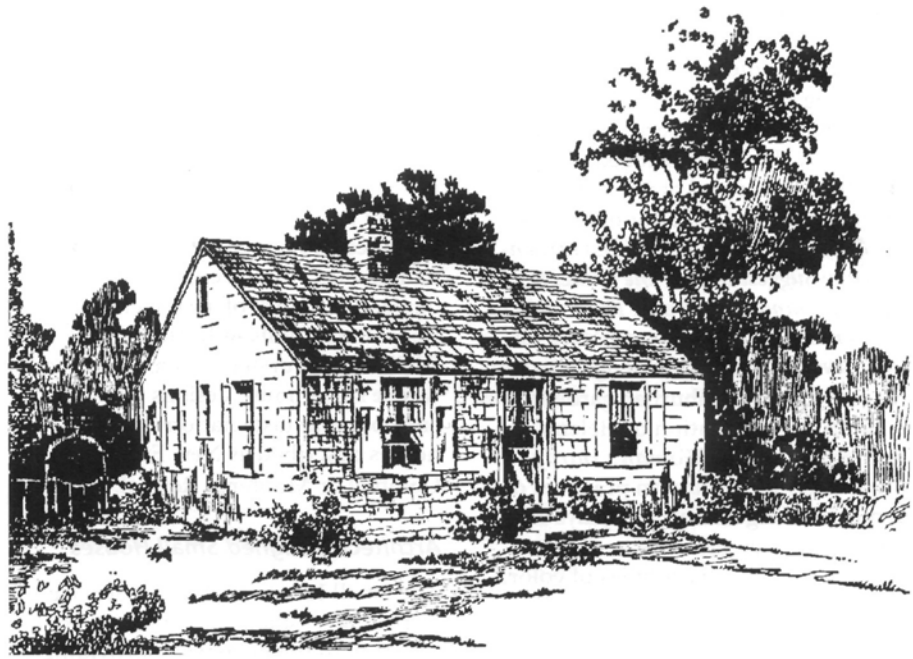
Although the demand for architect designed small houses was seriously curtailed during the Great Depression, AIA-sponsored service bureaus continued to operate in a number of major cities across the United States, including Boston, New York, Memphis, Houston, and Los Angeles, where they found support from local savings and loan associations interested in ensuring that the homes they mortgaged were a sound investment. In 1938, the Federal Home Loan Bank Board, Producers Council of the NAREB, and the AIA joined together to sponsor the Federal Home Building Service Plan, a program of certification which, during the next

decade, helped make home financing available to home owners who used service bureau plans and retained the services of registered architects to supervise construction. Although regionally-inspired Colonial Revival designs dominated, new forms such as the California Ranch house, appeared in the portfolios of approved architect-designed plans.

Landscape Design for Small House Grounds

By the late 1920s, professional landscape architects, such as Stephen Child and Sidney and S. Herbert Hare, had well established reputations for subdivision design and small residential projects in upper-income planned suburbs, such as Tucson's Colonia Solana and Kansas City's Country Club District. In 1923, the Home Owners Service Institute drew attention to the value of using the services of a professional landscape architect to arrange dwellings on site, lay out home grounds, and develop planting schemes in neighborhoods of small suburban homes. Garden City planners Stein and Wright recognized the profession's role in creating moderate-income neighborhoods when they hired Marjorie Sewell Cautley to assist their work at Sunnyside and Radburn, and encouraged the Buhl Foundation in Pittsburgh to hire Ralph E. Griswold to assist with the layout and planting of Chatham Village.[120]

Mrs. Francis King (Louise Yeomans King), a leader in the garden club movement, introduced the "Little Garden Series" in 1921, marking an increasing interest in the design of the small suburban lot. The series, which included Fletcher Steele's *Design in the Little Garden* (1924), brought home owners practical and aesthetic advice from professional landscape architects and successful gardeners. Other books by landscape architects reflecting this trend included Myrl E. Bottomley's *Design of Small Properties* (1926), Cautley's *Garden Design* (1935), Frank A. Waugh's *Everybody's Garden* (1930). Helen Morgenthau Fox's *Patio Gardens* (1929) and Richard Requa's *Architectural Details of Spain and the Mediterranean* (1927), both featuring Spanish and Mediterranean influences, encouraged the development of regional gardening forms that corresponded to emerging trends in house design and were suited to the warmer climates of California and Florida.[121]



House A elevations and plan *from* Principles of Planning Small Houses *(1936). Measuring 534 square feet, House A was the simplest FHA design and became known in the home building industry as the "FHA minimum house." The basic two-bedroom model could be varied by using different building materials, adding stylistic ornamentation, or by turning the house so that the gable faced the street. (Courtesy Library of the U.S. Department of Housing and Urban Development)*

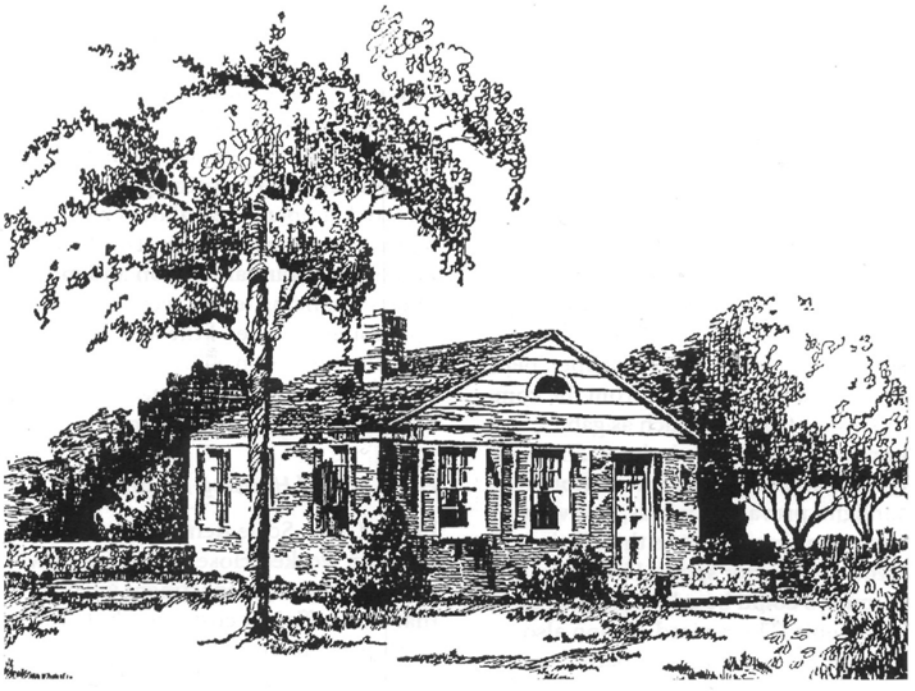
Public and Private Initiatives: The Efficient Low-Cost Home, 1931-1948

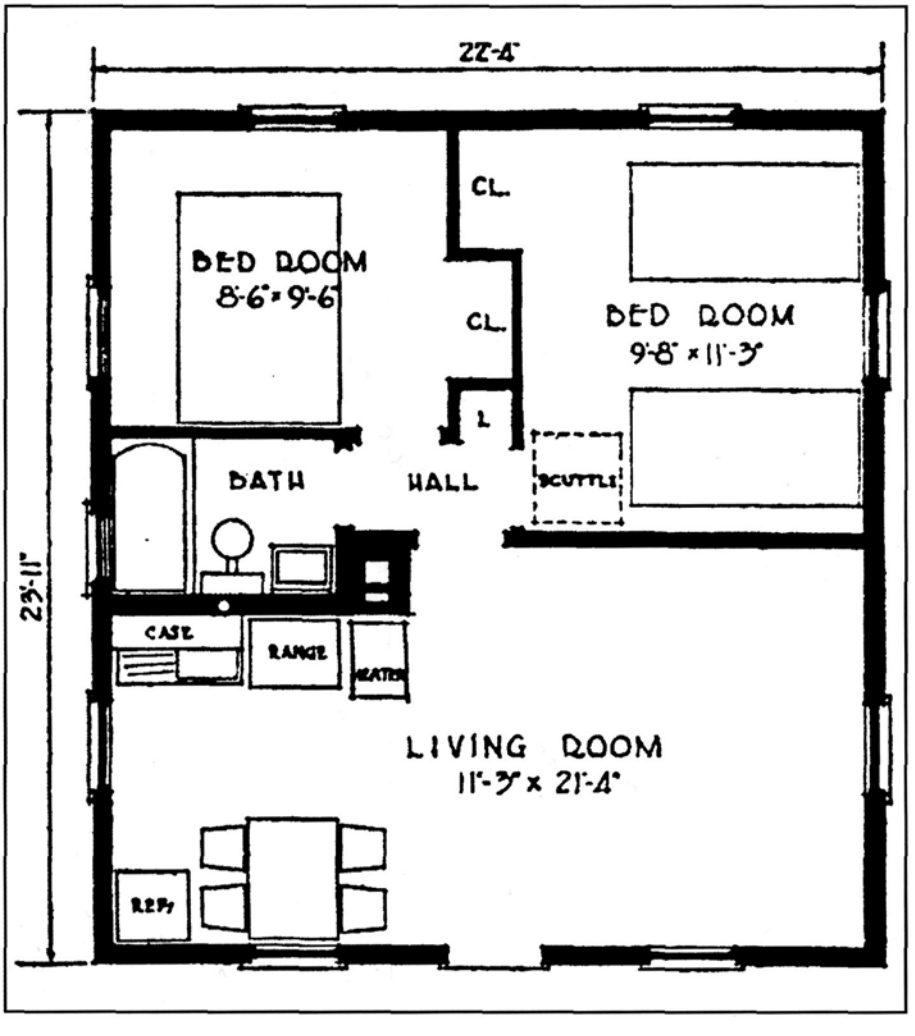
As the Great Depression deepened, housing starts declined precipitously, coming almost to a standstill. Discussion of the ideal small house took on new urgency with the collapse of the home building industry and the rising rate of mortgage foreclosures.

Findings of the 1931 President's Conference

With the recommendations of the Nation's leading experts, the 1931 conference endorsed the objective of reforming the Nation's system of home financing, improving the quality of housing for moderate and lower-income groups, and stimulating the building industry. For house design, these measures meant improving the design and efficiency of the American home while lowering its cost. Through a combination of private and public efforts, the design of efficient, low-cost housing—in the of form single, two-family, and multiple family dwellings—became a national priority, reflecting to a large extent the recommendations made by the conference committees.

The Committee on Design brought together experienced architects and developers who called for improvements in small house design such as building houses in well planned groups to avoid the monotony created by the repetition of uniform houses on narrow lots and siting houses to benefit from sunlight, air, and outdoor space. Representatives from trade organizations, building associations, and materials manufacturers formed the Committee on Construction, which





upheld the need for labor and time conserving methods, standard building codes, improved standards of workmanship, education and research by trade associations, and economies of prefabrication. Another committee examined the affordability of heating, ventilating, and air conditioning, and set basic requirements for plumbing and sanitation, electric wiring, and refrigeration.[122]

The Committee on Landscape Planning and Planting, which brought together landscape architects experienced in residential design and representatives of the organizations such as the Garden Club of America and National Council of State Garden Club Federations, upheld the importance of attractive yard design and landscape plantings to enhance a home owner's comfort and enjoyment as well as increase property values.[123]

FHA's Minimum House and Small House Program

Through its approval of properties for mortgage insurance and the publication of housing and subdivision standards, the FHA instituted a national program that would regulate home building practices for many decades. House designs, first published in FHA's *Principles of Planning Small Houses* (1936), were updated periodically. Circulars, such as *Property Standards, Recent Developments in Building Construction,* and *Modern Housing,* addressed issues of prefabrication methods and materials, housing standards, and principles of design.

The five FHA house types that appeared in *Planning Small Houses* in 1936 offered "a range in comfort of living," and in succession a "slightly increasing accommodation." Illustrated by floor plans and simple elevations, each type was void of nonessential spaces, picturesque features, and unnecessary items that would add to their cost, following FHA's principle for "providing a maximum accommodation within a minimum of means." Houses could be built in a variety of materials, including wood, brick, concrete block, shingles, stucco, or stone. To increase domestic efficiency,

new labor saving technologies were introduced: kitchens were equipped with modern appliances, and the utility room's integrated mechanical system replaced the basement furnace of earlier homes.[124]

The simplest FHA design became known in the home building industry as the "FHA minimum house." Measuring 534 square feet and having no basement, House A was a one-story, two-bedroom house designed for a family of three adults or two adults and two children. A small kitchen and larger multipurpose living room extended across the front of the house, while two bedrooms and a bathroom were located off a small hallway at the back of the house. The slightly larger House B provided 624 square feet of living space and had more lasting appeal.[125]

Houses C and D were two-story homes, having two upstairs bedrooms, with the latter offering a simple attached garage. House E, a compact two-story, three-bedroom house, was the largest and most elaborate of FHA's early designs. Illustrated with a classically inspired doorway and semicircular light in the street-facing gable, it demonstrated that a house could be "attractively designed without excessive ornamentation."[126]

FHA's 1940 edition of *Planning Small Homes* introduced a dramatically different, flexible system of house design based on the principles of expandability, standardization, and variability. Praised for its livability, the simple one-story "minimum" house became the starting point from which many variations arose as rooms were added or extended to increase interior space, often forming an L-shaped plan. Exterior design resulted from the combination of features such as gables, porches, materials, windows, and roof types. Factors such as orientation to sunlight, prevailing winds, and view became as important as the efficient layout of interior space. Fireplaces and chimneys could be added, as well as basements. The revised edition also included designs for two-bedroom, two-story houses having central-hall and sidewall-stair plans, some offering built-in garages and additional bedrooms.[127]

The new FHA principles provided instructions for grouping similarly designed houses in cul-de-sacs and along streetscapes by varying the elements of exterior design in ways that avoided repetition and gave the neighborhood an interesting and pleasing character, for example, by varying the placement of each house on its lot and introducing a variety of wall materials and roof types. The principles were directed at operative builders who, taking advantage of the cost-reducing practices of standardization and more liberal financing terms, were becoming increasingly aware of the advantages of building homes on a large scale and, for the first time, were creating what has become known as "tract" housing.[128]

FHA's Rental Housing Program

FHA's Large-Scale Rental Housing Division worked closely with operative builders to design apartment villages that were efficient cost-wise, but also attractive and desirable places for moderate-income renters. Utilizing superblock planning and incorporating garden courts and common greens, they were strongly influenced by Stein and Wright's Garden City projects at Sunnyside Gardens, Radburn, and Chatham Village, as well as the highly recognized World War I defense hous-

ing communities of Seaside Village at Bridgeport, Connecticut, and Yorkship Village at Camden, New Jersey.

The overall aesthetic effect of garden apartment villages relied on the varied and irregular massing of units within a superblock, separation from automobile traffic, an interlocking arrangement of housing units to fit a site's topography which avoided the appearance of either rowhouses or large apartment blocks, and the provision of landscaped walkways, gardens, and recessed entry courts. Staggered roof lines and unifying cornices, fascia, and dentil friezes, and the repetition of modest and similar architectural embellishments—doorways, transoms, mouldings, window surrounds, roof designs—unified each complex's overall design.

Economies of scale and the use of standardized building components dictated the design of communities such as Buckingham in Arlington, Virginia. Functional efficiency and cost reduction relied on the use of standardized components and appliances, the development of consolidated mechanical systems, and an efficient arrangement of rooms within each apartment, and of apartments within each dwelling unit. Influenced by Henry Wright, who had advised on the design of Buckingham and whose *Rehousing Urban America* was published in 1935, FHA architect Eugene H. Klaber developed a series of efficient "unit plans," which published in FHA's monthly *Architectural Bulletin* (1940), guided much market-rate rental housing construction through World War II.[129]

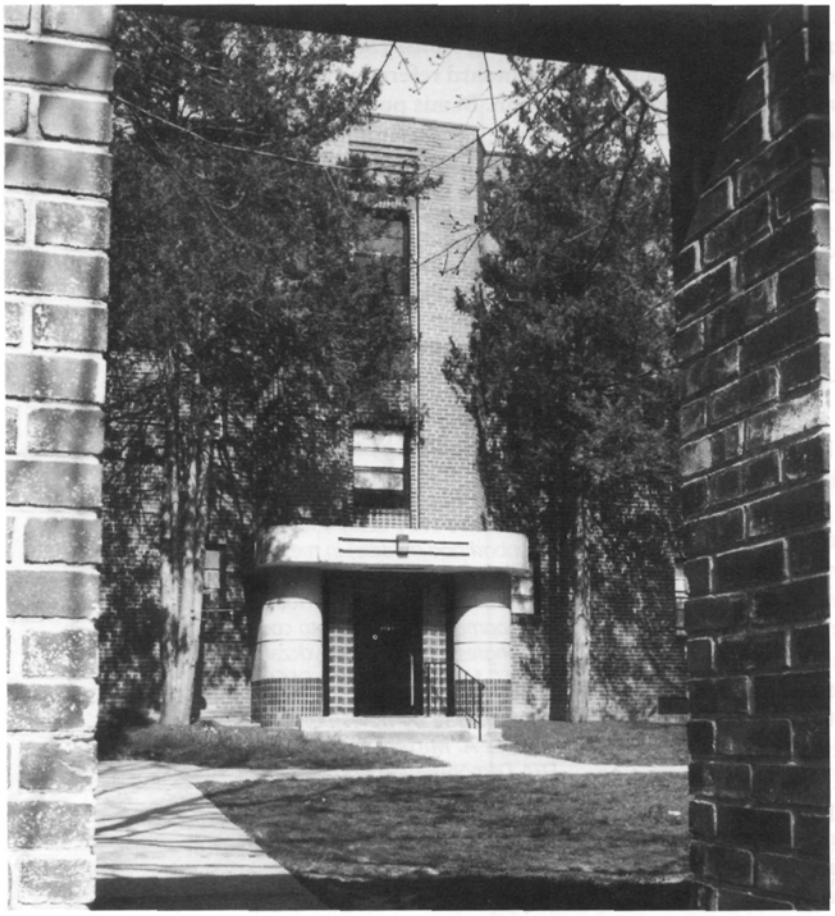
Prefabricated Houses

The 1930s became a decade of experimentation. A number of private organizations assumed the role of "scientific housers" with the purpose of creating a house that a majority of American wage earners could afford. Others explored the principles of mass production and prefabrication to reduce the cost of building materials and housing.[130]

Bemis Industries, Inc., under the direction of Albert Farwell Bemis, experimented with prefabricated modular systems using a variety of materials including steel, gypsum-based blocks and slabs, and composition board and steel panels to create a series of model homes; this work established the principles for Bemis's three-volume *The Evolving House* (1936), which became a standard reference work on prefabrication. Bemis pursued a three-fold strategy: first, simplify the house by eliminating seldomly used space; second, streamline the construction

***Tract housing had its origins** in the late 1930s as builders sought ways to reduce the cost of construction, capture the growing market of FHA-qualified home buyers, and take advantage of the time and cost saving benefits of building homes on a large scale. By moving the entrance to one side and using newly-available asbestos shingles and steel casement windows, local architects Schreier & Patterson adapted FHA's House E (far left), a popular two-story design, for houses in a new neighborhood (middle) in metropolitan Washington, D.C. (Illustration courtesy Library of the U.S. Department of Housing and Urban Development; historic photo courtesy Library of Congress, Theodor Horydczak Collection, neg. LC-H814-T-2387-016 DLC)*

***Built in 1936 by newspaper publisher Charles A. Mitten,** the Mesa Journal-Tribune FHA Demonstration House in Mesa, Arizona, sparked great local interest in home ownership and stimulated a local boom in FHA-approved construction in the late 1930s. (Photo by Shirley Kehoe, courtesy Arizona Historic Preservation Office)*



(above) ***Samester Parkway Apartments*** *(1939) in Baltimore, Maryland. A central garden court sheltered from nearby streets and a series of attractive entrances demonstrate the value of superblock planning and use of standardized unit-plans in the design of large-scale, FHA-approved rental communities. Sun-filled stairwells with glass-block sidelights, porthole windows, and streamlined aluminum railings illustrate FHA's practical concerns for creating a healthy, well-organized environment, as well as the aesthetic influences of European Modernism and the Art Moderne style. (Photos by Betty Bird, courtesy Maryland Department of Housing and Community Development)*

(far right) ***House made of prefabricated "Cemesto" panels*** *at the U.S. nuclear research facility in Oak Ridge, Tennessee. This system of prefabrication was originally developed by the John B. Pierce Foundation and Celotex Corporation for employee housing at the Glenn L. Martin Aircraft Company near Baltimore, Maryland. During World War II, it was adapted on a large-scale for both single- and multiple family dwellings to house defense workers and their families. (Photo by Kimberley A. Murphy, courtesy Tennessee Historical Commission)*

process by using time and labor-saving equipment, materials, and techniques; third, apply principles of modern industrial management for production based on economies of scale and the sequential production of components.[131]

The John B. Pierce Foundation of New York City examined the American home from the standpoint of efficiency. Through space-and-motion studies of family living habits, the foundation developed the prototype for a 24 by 28 foot house, having four rooms and a bath which became a community building standard. The foundation developed a number of models, including a demonstration village at its laboratory in Highbridge, New Jersey, and worked with manufacturers to develop small marketable dwellings using innovative materials and prefabricated components, which were manufactured on a large scale and purchased by the U.S. government during World War II.[132]

In 1935, the Forest Products Laboratory of the U.S. Department of Agriculture developed a "stress-skin" plywood house, which spurred a series of efforts to develop insulated, prefabricated wood panels that could be manufactured on a large scale and shipped for easy assembly onsite. Such prefabricated systems were adopted by a number of manufacturers, including the Celotex Company of Chicago and Homasote Company of Trenton, New Jersey, which would both become leading manufacturers of housing for defense workers during World War II.[133]

In its annual revision of *Recent Developments in Building Construction*, FHA reported on new developments and provided a list of the materials and methods approved by the U.S. Bureau of Standards. In 1940 the list included methods ranging from a system of steel panel construction manufactured by Steel Buildings, Inc., of Ohio to concrete construction methods promoted by the Portland Cement Association.[134]

Prefabricated methods took on increasing importance with the onset of World War II as the construction of both temporary and permanent housing in places determined critical for defense production became a national priority. The need to speed production and lower construction costs guided these efforts, many of which were funded under the Lanham Act and public housing programs. After the war, manufacturers continued to shape the suburban landscape based on principles of mass production and prefabrication. Federal loans for the construction of manufacturing plants through the Reconstruction Finance Corporation made it possible for manufacturers such as Carl Strandlund of Chicago and Harvey Kaiser in California to fund large-scale efforts to produce housing components that could be shipped and assembled onsite to provide housing for the families of returning veterans.[135]

Many attempts to produce factory-made prefabricated dwellings experienced limited success and failed, including the demountable Acorn houses introduced in 1945 by Carl Koch and John Bemis of Massachusetts and the porcelain-enamel steel Lustron House, manufactured from 1947 to 1950, the invention of manufacturer Carl Strandlund and architect Morris Beckman.

To architects such as William Wurster and Walter Gropius, prefabrication promised a solution to housing America's lower-income families. During the 1940s, Gropius worked closely with Konrad Wachsmann and the General Panel Corporation to develop a system of prefabrication that would markedly reduce the cost of housing. Although the final model called "the Packaged House" was technically a success, the company's efforts to market the system and remain financially solvent failed.[136]

More successful were house manufacturers such as National Homes Corporation of Lafayette, Indiana, and Gunnison Homes of New Albany, Indiana, which readily adapted their factory operations to postwar conditions and offered a number of designs suited to the needs, incomes, and tastes of postwar middle-income home buyers. These companies engaged the services of well-known architects, including Royal Barry Wills and Charles M. Goodman, and offered expanding portfolios with the latest in interior and exterior features, such as heat-insulated windows and exposed redwood ceilings.[137]

Postwar Suburban House and Yard, 1945-1960

By 1945, several factors—the lack of new housing, continued population growth, and six million returning veterans eager to start families—combined to produce the largest building boom in the Nation's history, almost all of it concentrated in the suburbs. From 1944 to 1946, single-family housing starts increased eight-fold from 114,000 to 937,000. Spurred by the builders' credits and liberalized terms for VA- and FHA-approved mortgages by the end of the 1940s, home building proceeded on an unprecedented scale reaching a record high in 1950 with the construction of 1,692,000 new single-family houses.[138]

The experience of World War II demonstrated the possibilities offered by large-scale production, prefabrication methods and materials, and streamlined assembly methods. In 1947 developer William Levitt began to apply these principles to home building in a dramatically new way, creating his first large-scale suburb, Levittown on Long Island, which would eventually accommodate 82,000 residents in more than 17,500 houses.[139]

Levitt's idea was to lower construction costs by simplifying the house, assembling many components off-site, and turning the construction site into a streamlined assembly line. The economy of using factory produced building components, such as pre-cut wall panels and standardized mechanical systems, significantly lowered the cost of construction. By adapting assembly line methods for horizontal or serial production, Levitt and Sons was able to systematically and efficiently assemble the components on site. The construction process was divided into 27 steps, each performed in sequence by a specialized crew. The tasks, skills, and manpower to complete each step were precisely defined and each member was trained to perform a set of repetitive tasks, enabling work crews to move efficiently and quickly through each site, thus establishing the firm's reputation for completing a house every 15 minutes.[140]

The vast subdivisions of Cape Cods and later Ranch homes, mocked by critics as suburban wastelands, represent not only an unprecedented building boom, but the concerted and organized effort by many groups, including the Federal government, to create a single-family house that a majority of Americans could afford. Levitt actually perfected a construction process that had been in the making for more than two decades. Other developers did the same, including Harvey Kaiser at Panorama City, near Los Angeles, and Philip M. Klutznick of American Community Builders, Inc., at Park Forest, Illinois. The success of Levitt and others resulted in the emergence of large-scale developers, called "merchant builders," who would apply their successful formulas for building large communities in one location after another, often accommodating changing tastes, economics, and consumer demand in new and improved house designs.[141]

From the FHA Minimum House to the Cape Cod

The Cape Cod provided most of the low-cost suburban housing immediately following the war and was built in groups of varying sizes, sometimes numbering the hundreds. Often located on curvilinear streets and cul-de-sacs that reflected the FHA guidelines for neighborhood planning, Cape Cods appeared in a variety of materials, including sheets of insulated asbestos shingles available after the war in an increasing assortment of colors.

The Cape Cod that eager prospective renters lined up to inspect in the first Levittown in June 1947, was one-and-a-half stories and built on a concrete slab. Its 750 square feet of living space was divided into a living room, a kitchen, two bedrooms, and a bath. Set on a lot of 6,000 square feet, the exterior of the house—with a steeply pitched gable roof pierced by two dormers above a clapboarded first story—was a variation on a Cape Cod cottage and was a somewhat larger version of the FHA minimum house, which had been improved and expanded in FHA's 1940 *Principles for Planning Small Houses*.[142]

Large-scale subdivisions not only took form on the periphery of the Nation's largest metropolitan areas, but also around many smaller cities. For middle- and upper-middle-income families, especially in the East, simplified versions of pre-war "small house" designs such as brick or clapboarded Cape Cod and other Colonial Revival forms continued in popularity, in large part due to architect Royal Barry Wills, who published numerous plan books, including *Houses for Good Living* (1940), *Better Homes for Budgeteers* (1941), *Houses for Homemakers* (1945), and *Living on the Level* (1955).[143]

The Suburban Ranch House

The suburban Ranch house of the 1950s reflected modern consumer preferences and growing incomes. With its low, horizontal silhouette and rambling floor plan, the house type reflected the nation's growing fascination with the informal lifestyle of the West Coast and the changing functional needs of families.[144]

In the 1930s California architects Cliff May, H. Roy Kelley, William W. Wurster, and others adapted the traditional housing of Southwest ranches and *haciendas* and Spanish Colonial revival styles to a suburban house type suited for middle-income families. The house was typically built of natural materials such as adobe or redwood and was oriented to an outdoor patio and gardens that ensured privacy and intimacy with nature. Promoted by *Sunset* Magazine between 1946 and 1958 and featured in portfolios such as *Western Ranch Houses* (1946) and *Western Ranch Houses* by Cliff May (1958), May's work gained considerable attention in the Southwest and across the nation.[145]

In the late 1940s popular magazine surveys indicated the postwar family's preference for the informal Ranch house as well as a desire to have all their living space on one floor with a basement for laundry and other utilities and a multipurpose room for hobbies and recreation. Builders of middle and upper-income homes mimicked the architect-designed homes of the Southwest, offering innovations such as sliding glass doors, picture windows, carports, screens of decorative blocks, and exposed timbers and beams, which derived as much from modernistic influences as those of traditional Southwestern design.[146]

Builders of low-cost homes, however, sought ways to give the basic form of FHA-approved houses a Ranch-like appearance. By late 1949, Levitt & Sons had modified the Cape Cod into a Ranch-like house called "The Forty-Niner," by leaving the floor plan intact and giving the house an asymmetrical facade and horizontal emphasis by placing shingles on the lower half of the front elevation and fitting horizontal sliding windows just below the eaves. Picture windows, broad chimneys, horizontal bands of windows, basement recreational rooms, and exterior terraces or patios became distinguishing features of the forward-looking yet lower-cost suburban home.[147]

In the 1950s, as families grew larger and children became teenagers, households moved up to larger Ranch houses, offering more space and privacy. With the introduction of television and inexpensive, high-fidelity phonographs, increasing noise levels created a demand for greater separation of activ-

ities and soundproof zones. The split-level house provided increased privacy through the location of bedrooms on an upper level a half-story above the main living area and an all-purpose, recreation room on a lower level. The Ranch house in various configurations, including the split level, continued as the dominant suburban house well into the 1960s.

The Contemporary House

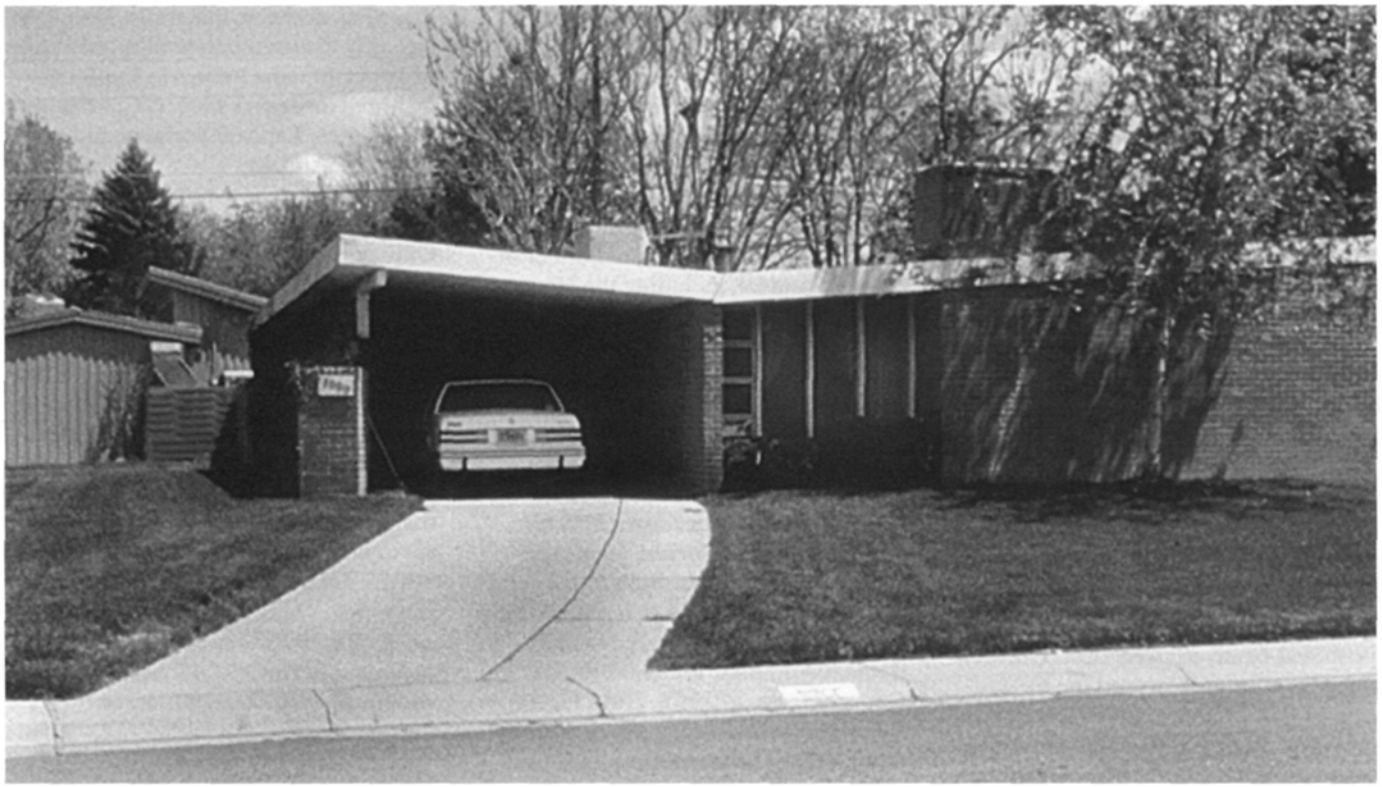
The influence of Frank Lloyd Wright, Walter Gropius, Marcel Breuer, Richard J. Neutra, Mies van der Rohe, and other modernists inspired many architects to look to new solutions for liveable homes using modern materials of glass, steel, and concrete, and principles of organic design that utilized cantilevered forms, glass curtain walls, and post-and-beam construction. The contemporary home featured the integration of indoor and outdoor living area and open floor plans, which allowed a sense of flowing space. Characteristics such as masonry hearth walls, patios and terraces, carports, and transparent walls in the form of sliding glass doors and floor-to-ceiling windows became hallmarks of the contemporary residential design.[148]

The principles of European modernism expressed in the International Style had been introduced to the American public in the 1932 Museum of Modern Art exhibition. The Century of Progress World's Fair at Chicago in 1933 introduced Americans to a number of modern houses, including the House of Tomorrow by George Fred Keck, noted for its polygonal form, innovative use of glass, and showcase of modern building materials.[149]

James and Katherine Ford's *Modern House in America* (1940) and professional magazines, such as the *Architectural Record, Progressive Architecture,* and *Architectural Forum,* promoted modernistic architect-built homes and featured the work of a rising generation of modernists including Edward D. Stone, Paul Thiry, William Lescaze, George Howe, Alden B. Dow, Pietro Belluschi, and Gregory Ain. Under the editorship of John Entenza, the "case study series" in *Arts and Architecture* from 1945 and 1966 included designs for 36 houses that reflected new approaches to domestic design and featured mass production techniques, innovative planning, and new materials. The series not only featured outstanding examples of upper-income homes in California by noted designers such as Charles and Ray Eames, Raphael Soriano, and Ralph Rapson, but also a proposed but never-executed 260-home subdivision in San Fernando Valley, designed by A. Quincy Jones, Jr., and Frederick E. Emmons and co-sponsored by merchant builder Joseph Eichler and the Producers' Council.[150]

Architects and others promoted the development of small houses reflecting modernistic design principles to meet the postwar housing shortage through plan books and detailed instructions that pointed out the construction and space efficiencies offered by modern design. Such books included *The Small*

Ranch house (1952) in the Denver Court Historic District, Galveston, Texas. *Developed by West Coast architects in the 1930s and promoted by* Sunset *Magazine in books such as architect Cliff May's* Western Ranch Houses *(1946), the sprawling Ranch house attained great popularity and appeared nationwide in the 1950s, often on the unbuilt lots of early subdivisions. (Photo by Lesley Sommer, courtesy Texas Historical Commission)*



Contemporary house (1951) with innovative "butterfly" roof *and carport by architect-planner Eugene Sternberg for Arapahoe Acres, a postwar suburb in Englewood, Colorado. The contemporary house of the 1950s offered families informal floor plans, window walls that merged interior and exterior spaces, and patios and terraces that provided outdoor rooms. Private organizations, including the Revere Quality House Institute and the Southwest Research Institute, recognized the value of such homes for their efficient arrangement of space, the low cost of construction, and pleasing modernistic design. (Photo by Diane Wray, courtesy of Colorado Historical Society)*

House of Tomorrow (1945) by Los Angeles architect Paul R. Williams; *Tomorrow's House: How to Plan Your Post-War Home Now* (1945) by designers George Nelson and Henry N. Wright; and the Museum of Modern Art's *If You Want to Build a House* (1946) by Elizabeth B. Mock.[151]

Frank Lloyd Wright's Usonian houses of the 1930s were forward looking with their horizontal emphasis, flat and sloping roofs, large windows, corner windows, and combination of natural wood and masonry materials. Wright continued to explore the problem of the small home, designing in 1938 an interesting group of quadraplexes, the Suntop Houses, at Ardmore, Pennsylvania. He gave new form to the Usonian house in the 1950s, and published *The Natural House* (1954), where he elaborated on his principles of organic design to create livable dwellings that integrated home and site.

Private organizations, such as the Revere Quality House Institute, Southwest Research Institute, and John D. Pierce Foundation, promoted the use of modern principles of design by sponsoring award programs and offering seals of approval for successful innovative designs. These programs encouraged the collaboration of developers and modernist architects and recognized the broadening array of new and innovative home building materials and prefabricated methods of construction.[152]

John Hancock Callender's *Before You Buy a House* (1953), a joint publication of the Southwest Research Institute and the Architectural League of New York, was designed to educate prospective home buyers about the efficiency, livability, and low-cost afforded by the "contemporary residential style." The book showcased dozens of communities of small homes from all parts of the country, including Arapahoe Acres in Englewood, Colorado; and many of merchant builder Joseph Eichler's subdivisions in California.[153]

In the 1950s AIA sponsored a Homes for Better Living award program in conjunction with *House and Home, Better Homes and Gardens,* and the National Broadcasting Corporation. This program recognized successful merchant-built communities such as Hollin Hills in Alexandria, Virginia, which featured the innovative domestic architecture of Charles M. Goodman.[154]

Appealing to an increasingly well-educated and prosperous audience, popular magazines heralded innovations in contemporary house design. The distinction between the Ranch and contemporary house became blurred as each type made use of transparent walls, privacy screens of design concrete blocks, innovations in open space planning, and the interplay of interior and exterior space. *House Beautiful* promoted Wright's designs as well as

other upper-income homes in the modernistic styles. *Better Homes* promoted designs to meet the incomes of a wider range of families and showcased successful owner-built designs alongside those of established architects, such as architect Chester Nagel's home in Lexington, Massachusetts. In the late 1940s *Better Homes* began to recognize outstanding examples, which were showcased as "Five Star Homes." Other magazines offered similar awards, including *Parents' Magazine,* which sponsored the "Best Home for Family Living" competition.[155]

Exploring the possibilities inherent in combining modern design and prefabrication methods, architect Carl Koch and John Bemis introduced the popular, mass-produced Tech-built house in the early 1950s. From 1952 to 1956, the U.S. Gypsum Corporation sponsored a well-publicized demonstration project at Barrington Woods, Illinois, which featured model homes by a number of leading designers. In addition, sources such as Koch's *At Home with Tomorrow* (1958) and Jones and Emmons's *Builder's Homes for Better Living* (1957) spurred a whole series of contemporary homes, whose facades by the end of the 1950s were dominated by overhanging eaves, broad gables, transparent walls, and aboveground balconies.

Postwar Suburban Apartment Houses

Modernism was embraced as the rental housing market expanded in the suburbs of large cities. Title 608 of the National Housing Act, which guaranteed builders 90 percent-mortgages on multiple family projects conforming to FHA standards, continued until the mid-1950s. Publication of Clarence Stein's *Toward New Towns* (1951) revived models for low- and mid-rise apartment villages, such as the Phipps Apartments at Sunnyside Gardens and the modernistic Baldwin Hills in Los Angeles. *Housing Design* (1954) by Columbia University professor Eugene Klaber set forth principles of unit-planning similar to those Klaber had developed for the FHA two decades earlier. FHA began to provide mortgage insurance for apartment buildings having elevators in the late 1940s. By the 1950s apartment buildings were equipped with improved mechanical systems, elevators, up-to-date appliances, central air conditioning, outdoor balconies, and newly available prefabricated components such as steelframed windows and sliding glass doors.[156]

Unlike their urban counterparts built on the site of cleared slums, high-rise suburban developments, which became increasingly popular in the late 1950s, were modeled after Le Corbusier's vision for the "radiant city" and luxury high-rise apartment houses in American cities, including Mies van der Rohe's Promontory Apartments (1949) and Lake Shore Drive Apartments (1951) in Chicago; Frank Lloyd Wright's Price Company Tower (1952) in Bartlesville, Oklahoma; and 100 Memorial Drive (1950) in Cambridge, Massachusetts, by the firm of Kennedy, Koch, DeMars, Rapson, and Brown. Their location along major expressways leading from the center city was motivated by convenience of location as well as advances in air conditioning, elevator design, mechanical systems, and structural design.[157]

Contemporary Landscape Design

New directions in landscape design accompanied the development of the Ranch house and contemporary residence in California. Emphasis on the integration of indoor and outdoor living encouraged the arrangement of features such as the patios and terraces, sunshades and trellises, swimming pools, and privacy screens. Several of the Case Study houses in *Arts and Architecture* featured the landscape work of Garrett Eckbo. Architects such as Paul Williams designed houses "with the living side facing a private garden." *Sunset* magazine publicized western gardens by Doug Baylis, Thomas Church, and Eckbo, a number of which formed the grounds of Ranch houses designed by Cliff May, and published *Landscape for Western Living* (1956). In addition, Thomas Church's *Gardens Are for People: How to Plan for Outdoor Living* (1955), and Garrett Eckbo's *Landscape for Living* (1950) and *Art of Home Landscaping* (1956) brought to a national audience simple principles for organizing the domestic yard into dignified lawns, private patios, informal garden rooms, and activity areas with simple, easy-to-maintain plants and shrubbery.[158]

The modern style sought to achieve an integration of interior and exterior space by creating lines of vision through transparent windows and doors to patios, intimate garden spaces, zones designed for special uses, and distant vistas. Hedges, freestanding shrubbery, and beds of low growing plants, arranged to form abstract geometrical patterns, reinforced the horizontal and vertical planes of the modern suburban house.[159]

Developers of contemporary subdivisions often secured the services of landscape architects as site planners to lay out their subdivisions and advise on the layout and planting of common areas, street corners, streets, and sidewalks. Others urged home owners to consult with landscape architects on the design of their suburban yards. The Southwest Research Institute encouraged such collaboration and recognized its achievement in suburban neighborhoods of contemporary homes, such as Hollin Hills in Alexandria, Virginia, where several landscape architects, including Dan Kiley, drew up planting plans for home owners and advised the developer on the planting of common areas.[160]

Figure 4.

Suburban Architecture and Landscape Gardening, 1832 to 1960

1832	Balloon frame construction invented in Chicago.
1838	*Rural Residences* by Alexander Jackson Davis published.
1841	Publication of *Treatise on Domestic Economy,* by Catharine E. Beecher and *Treatise on the Theory and Practice of Landscape Gardening* by Andrew Jackson Downing.
1842-1850	*Cottage Residences* and *Architecture of Country Houses* by Downing published.
1869	*The American Woman's Home* by Catharine E. Beecher and Harriet Beecher Stowe published.
1870	*Art of Beautifying Suburban Home Grounds* by Frank J. Scott published.
1876	*Model Homes for the People: A Complete Guide to the Proper and Economical Erection of Buildings,* the first of a series of mail order plan catalogs by George and Charles Palliser, published.
1878	*Modern Dwellings in Town and Country Adapted to American Wants and Climate* by Henry Hudson Holly published.
1907-1908	*How to Lay Out Suburban Home Grounds* by Herbert J. Kellaway and *Artistic Bungalows* by William Radford published.
	Sears and Roebuck begins pre-cut, mail order house catalog sales.
1913-14	*Suburban Gardens* and *Planting Around the Bungalow* by Grace Tabor published.
1916	Frank Lloyd Wright's American System Ready-Cut method of prefabrication used in the Richard's Small House and Duplexes, Milwaukee, Wisconsin.
1918	*The Small Place: Its Landscape Architecture* by Elsa Rehmann published.
1919	Architects' Small House Service Bureau founded in Minneapolis.
1921	*The Little Garden* published, introducing "The Little Garden Series," edited by Mrs. Francis King (Louise Yeomans King).
1922	Better Homes movement founded by the Butterick Company and endorsed by Secretary of Commerce Herbert Hoover.
1922-23	Country Club Plaza, Kansas City, Missouri, first automobile-oriented regional shopping center, developed by J. C. Nichols.
1923	Home Owners Service Institute sponsors "Home Sweet Home," the official demonstration house for the Better Homes in America movement and publishes *Books of A Thousand Homes,* edited by Henry Atterbury Smith.
1926	Publication of Myrl E. Bottomley's *The Design of Small Properties.*
1928-1932	Variety of moderately priced small houses built at Radburn; grounds and plantings by Marjorie Sewell Cautley
1929	Architects' Small House Service Bureau, Inc., publishes *Small Homes of Architectural Distinction,* edited by Robert T. Jones.
1930	Park-and-Shop, Cleveland Park, Washington, D.C., designed by Arthur Heaton for Shannon and Luchs Real Estate.
1931	President's Conference on Home Building and Home Ownership.
1932	Museum of Modern Art, New York, mounts exhibition entitled, "The International Style: Architecture Since 1922."
1932-36	Chatham Village, at Pittsburgh, developed by the Buhl Foundation and designed by architects Ingham and Boyd and landscape architect Ralph E. Griswold.
1933-34	Century of Progress International Exhibition, Chicago, features "House of Tomorrow."
1934	Federal Housing Administration establishes programs for insuring mortgages on small homes and large-scale rental housing.
1935	*Rehousing Urban America* by Henry Wright and *Garden Design* by Marjorie Sewell Cautley published.
	Demonstration of prefabrication at Purdue Research Village, Lafayette, Indiana.
	Forest Products Laboratory of the U.S. Department of Agriculture introduces house made of "stress-skin" plywood panels.
1936	Bemis Industries publishes three-volume *The Evolving House,* which outlines principles of prefabrication.

	Federal Housing Administration publishes first standards for insurable neighborhoods and introduces the FHA minimum house.
1936-39	Buckingham Community, Arlington, Virginia, developed by Paramount Motors Company using the principles of economies of large-scale construction and standardization of building components.
1938	Federal Home Loan Bank Board, Producers Council, and AIA jointly introduce Federal Home Building Service Plan, encouraging home builders to use the services of registered architects to carry out construction according to architect-designed small house plans.
1940	Construction of Crow Island School, Winnetka, Illinois, by architects Eliel and Eero Saarinen and Perkins, Wheeler, and Will.
	Publication of *Modern House in America* by James Ford and Katherine Morrow Ford.
	FHA introduces new standards and an efficient, flexible system of house design and construction; issues "Architectural Bulletins" with unit plans for large-scale housing.
	John Pierce Foundation with the Celotex Company of Chicago, Illinois, introduces cemesto boards in the construction of prefabricated houses for Glenn Martin Aircraft near Baltimore, Maryland.
1940-41	Royal Barry Wills publishes *Houses for Good Living* and *Better Houses for Budgeteers.*
1942	Skidmore, Owings and Merrill plans defense-worker community at Oak Ridge, Tennessee.
1945-46	Publication of *Tomorrow's House: How to Build Your Post-War Home Now*, by George Nelson and Henry Wright; *The Small House of Tomorrow* by Paul R. Williams; *If You Want to Build a House* by Elizabeth B. Mock.
1945-66	*Arts & Architecture* publishes Case Study House series.
1946	*Sunset* Magazine publishes *Western Ranch Houses* featuring work of Cliff May, Doug Baylis and others.
	Movement to provide veterans' housing gains momentum especially in rental housing; Veterans' Emergency Housing Act of 1946 (60 Stat. 215) extends FHA authority to insure mortgages under Title VI. Elevator structures determined acceptable for FHA rental housing.
1947	Legislation to encourage private development of housing for veterans based on prefabrication methods in the form of short-term loans to housing manufacturers.
	Levitt and Sons builds first houses at Hempstead on Long Island, New York; Philip Klutznick forms American Community Builders to develop Park Forest, Illinois (planner Elbert Peets).
1947-50	Prefabricated homes made of porcelain-enameled steel panels manufactured by the Lustron Corporation (Carl Strandlund, manufacturer).
1948	Cameron Village Shopping Center, Raleigh, North Carolina, first large retail shopping center, planned by developer Wilke York, and site planner, Seward H. Mott.
1950	*Landscape for Living* by landscape architect Garrett Eckbo, published by *Architectural Record.*
1952-54	Northland Shopping Center, Detroit, Michigan, planned by Victor Gruen and Associates.
1953	Southdale Shopping Center, Minneapolis, Minnesota, first enclosed, climate-controlled mall designed by Victor Gruen.
1952-56	U.S. Gypsum Research Village in Barrington Woods, Illinois, showcases contemporary house designs.
1953	*Before You Buy A House* published by New York Architectural League and Southwest Research Institute, promoting modern principles of house design and the collaboration of architects and developers.
1955-56	Publication of Thomas Church's *Gardens Are for People: How to Plan for Outdoor Living;* Garrett Eckbo's *Art of Home Landscaping;* and *Sunset* Magazine's *Landscape for Western Living.*
1957	Hollin Hills, Alexandria, Virginia, selected as one of the "Ten Buildings in America's Future" in AIA Centennial Exhibition.
1957-58	Publication of A. Quincy Jones Jr., and Frederick E. Emmons's *Builders' Homes for Better Living* and Carl Koch's *At Home with Tomorrow.*