



**Postwar Modern Housing and a
Geographic Information System Study
of Scottsdale Subdivisions**

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STUDY OVERVIEW

Stretched across our suburban landscape by the millions, the modern ranch house is an icon of postwar America. Marking the first time that many families realized the longstanding American dream of owning a separate house with land, these houses are testimony to unprecedented prosperity and innovation. Equally noteworthy, the proliferation of postwar subdivisions often signaled the transition of a community from town to suburban city, a fact which was especially true in the West. Indeed, the postwar boom is cited as “probably the most important period in [Phoenix’] history” with subdivision building in the metropolitan area likened to what “steel is to Pittsburgh” (Walker quoting Abele 2000). Built in an era when money for homes was practically given away, our affair with the car blossomed, and America experienced a baby boom, ranch neighborhoods capture the unique history and culture of a particularly optimistic new generation (Ames 2000).

The ideal of a leisure home on the range was successfully packaged and mass-produced by the postwar builder (Hess 2000; Jackson 1985). Architecturally simple and modern, the character of the standardized houses was easily manipulated by changes to their front façade and then marketed to a burgeoning number of middle class buyers eager for the continually updated version of the good life they represented (McAlester 1984; Wright 1999). Evolving in concept and design to accommodate the carefree and modern family portrayed by

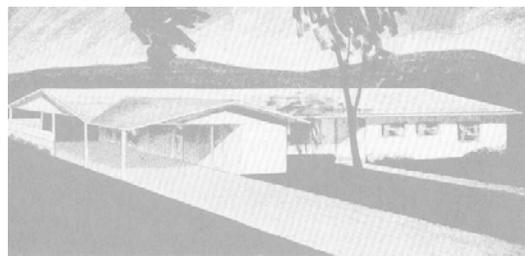
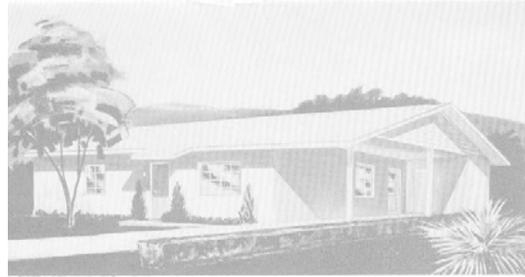


Figure 1 Model Ranch Home Renderings
Source: Del Webb Corporation, 1953

The popular media (Wright 1999), the ranch house style also borrowed from a romanticized view of the working ranch seen in movie westerns (Hess 2000).

Central to the allure was their promise of an idyllic family-oriented suburban lifestyle à la the Cleavers in the fifties television show "Leave It to Beaver" and "The Brady Bunch" family of the sixties.

The truth is that ranch subdivisions tell a rich story about the postwar American dream and its particular expression in thousands of neighborhoods across the country. In fact, the essence of popular culture is communicated through their very ordinary details. The automobile – another postwar icon - influenced everything from curvilinear street layouts to the house design itself, which typically included an attached carport or garage, and even inside where kitchen cabinets, countertops, fixtures and knobs match the steel, simulated wood grain, and chrome elements found on cars. Built primarily around city edges, the away-from-it-all locations indicate land was accessible by car, easily developed and affordable. Lot and house sizes infer something about the economic conditions at the time of construction. The number of rooms and bathrooms provide clues about family size and the increasing value of leisure and privacy. Porches, patios, and picture windows also changed in ways that suggest an increasing emphasis on privacy and a movement to backyard entertaining. Information about exterior wall materials tells us what was available, affordable, or chic as well as what kind of character or image the builder created to seduce their buyers. Uniformity in the front façade, house plans or wall and roof materials may suggest tract homes whereas variety may indicate custom or upscale builder homes. And so the story goes.

As cultural icons that represent significant events and community development patterns as well as historic trends in design, materials and construction methods, many ranch subdivisions are potentially eligible for listing as historic districts under national and local guidelines. Such designation facilitates planning for their preservation. Toward this end, the following study examines those trends that influenced postwar subdivision development and the resulting physical patterns in Scottsdale, Arizona, a suburb of metropolitan Phoenix.

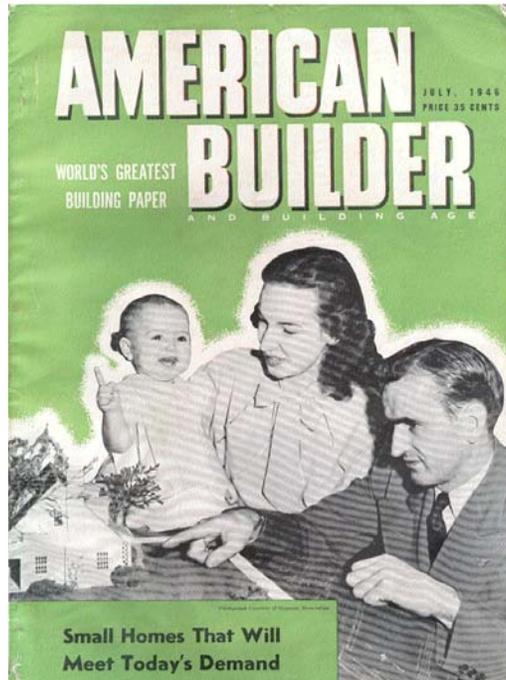


Figure 2 Builder's Trade Magazine
Source: American Builder, July 1946

RESEARCH DESIGN

To learn more about Scottsdale's development, a Geographic Information System (GIS) with a database of physical characteristics on thousands of homes was used to analyze details regarding 236 postwar subdivisions. Looking at almost 15,000 houses built between 1946 and 1973 revealed physical patterns over time and by locations that reflected typical postwar trends but also set the city apart as a premier residential suburb. This information, analyzed alongside historic records, illustrated the general context of their postwar subdivision development story. It also showed how subdivisions within Scottsdale compared to each other, including what was typical or unique, and what some of their essential features were.

This project is a case study documenting key influences on residential subdivision development and the resulting physical characteristics in Scottsdale, Arizona between 1946 and 1973. Broadly speaking this is a story about modern houses in the "West's Most Western Town" and the historic events and cultural values that shaped them. Since a primary purpose is to facilitate preservation of these icons, the research design was based on guidelines published by the National Register of Historic Places for preservation planning, identification, evaluation, and registration of historic properties (U.S. Department of the Interior 1998). Identical standards were also adopted by the City of Scottsdale (1999). More recently, the National Register published guidelines specifically on historic suburbs, including postwar subdivisions, and these guidelines provided more detailed procedures for their evaluation as potential historic districts (Ames 2000). Moving beyond traditional preservation survey methods, this study used a GIS to analyze the physical patterns reflecting postwar subdivision and housing development in Scottsdale, Arizona.

Evaluation of Scottsdale's postwar neighborhoods involved the study of qualitative and quantitative information directed to specific research questions. These questions addressed the information required for understanding the historic context and significance of their development under recognized standards (U.S. Department of the Interior 1998; City of Scottsdale 1999). Data came from a variety of sources including popular, professional and academic literature as well as computerized database files maintained by the Maricopa County Assessor and Records' Offices and the City of Scottsdale. The following diagram presents a general summary of this research design.

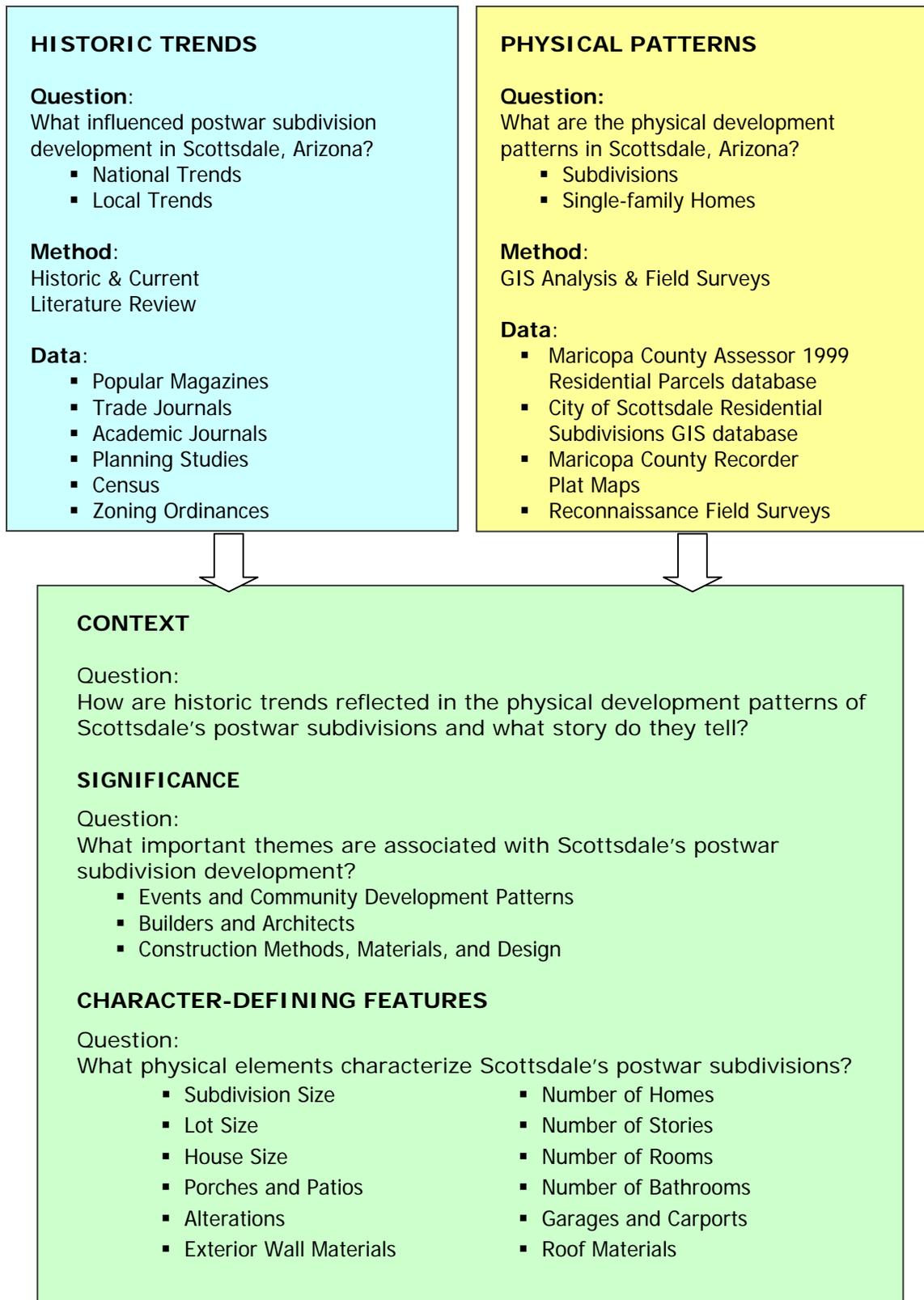


Figure 3 Research Design

HISTORIC SUBURBAN HOUSING DEVELOPMENT

INTRODUCTION

Beginning with the first single-family residential subdivisions in the mid 1800s the tale of America's suburbs has been well chronicled in popular, trade and academic literature. Ever since, the "American dream" has been synonymous with the ideal of owning a suburban house with land, although physical development patterns indicate that successive suburban eras represented distinct cultural values, socio-economic conditions and technologies (Ames 2000; Stewart 1979; Hayden 1984; Jackson 1985). At its heart this dream reflected "a consensus about a model suburb, the model house and [a model] lifestyle [that] was diffused throughout American society [and became] the motivation for suburbanization among all income and social groups" (Ames 2000, 15).

Central to the ideal was the concept of suburban home as haven from the immorality of the industrialized city – a wholesome place where the family "came to be a personal bastion against society, a place of refuge" (Jackson 1985, 47). Within this context, space separated the daily functions of living, which was reflected in physical subdivision development patterns. For example, the suburban yard created a buffer between public and private life and separation of spaces within the home created zones for different public and private activities – "with formal social spaces and private sleeping areas" (Jackson 1985, p 48; Stewart 1979).

In pursuit of this dream - if large numbers are a measure of success - then something truly remarkable occurred with subdivision development following World War II, when builders nationwide constructed over fifteen million homes in the fifties alone (Rome 2001). The ubiquity of these postwar houses suggests an epiphany of sorts in the evolution of suburbs. The literature bears this out.

In the national context of their growth, suburban development stories have been characterized in terms of the interplay among five major themes. Influential trends, which reflect these themes, related to 1) transportation, 2) demographics, 3) subdivision development and design, 4) home financing, and 5) related suburban properties such as schools, employer sites and commercial buildings (Ames 2000). The postwar subdivision phenomena can be attributed to a smoldering of these influences from earlier periods coupled with new sparks following World War II that together ignited the era of modern home development, which lasted almost thirty years. Particular influences on residential subdivision development in Scottsdale were traced through the evolution of national suburban trends as well as local events in the postwar era.

American housing patterns changed with the rise of sprawling industrial cities as the national economy shifted its emphasis from agriculture to industry, particularly between 1840 and 1920. Urban living conditions in this era were often

bad, with environments characterized by foul air, poor sanitation, crowded living conditions, and diseases such as tuberculosis, cholera, diphtheria, and influenza. These dangers and discomforts eventually encouraged newly affluent urban businessmen to move their families to suburban locations outside the urban centers (Hayden 1984).

In addition to promoting the undesirable urban conditions that prompted early suburbanization, industrialization also influenced America's suburban growth patterns through the available transportation technologies, which made land outside the urban centers accessible for residential uses (Ames 2000; Fishman 1987; Jackson 1985). Since the middle of the nineteenth century, a succession of transport modes including the horse-drawn carriage, train, horse-drawn omnibus, electric streetcar, and finally, the automobile, made suburban development possible. These emerging technologies provided the necessary transport modes for businessmen to commute from the outskirts of the city to their jobs in downtown offices, stores, and factories (Hayden 1984). Thus there were horse car and railroad suburbs dating from the 1840s to the 1890s, streetcar suburbs from the late 1880s to the 1920s, and early automobile suburbs built beginning in the 1920s that continued through 1945. The late automobile or freeway suburbs began appearing after World War II (Ames 2000).

The success of the postwar subdivision was no coincidence, nor did it happen overnight. Indeed, a review of suburban development history suggests elements from every earlier period contributed something to the modern housing form that dominated the postwar landscape. Therefore, the story begins with the first American suburbs dating to the mid-1800s.

RAILROAD SUBURBS

Demographically, the railroad suburbs, which usually grew in nodes around rail stations and were subdivided into large, estate size lots, served the well-to-do in the outer periphery and were modeled after the picturesque English garden example (Ames 2000). These exclusively planned suburbs began appearing in the 1840s and introduced the now-prototypical curvilinear street design that "symbolized nature and the countryside" with single-family houses on separate lots (Ibid. 39). This subdivision pattern and the concept of a house in the middle of a manicured lawn or garden quickly became the ideal and gathered momentum over the next century (Fishman 1987; Jackson 1985). The front lawn came to represent a balance between public and private space and became the defining design detail of American suburban landscapes (Fishman 1987).

Providing refuge from the "pathologies and stresses" of the industrializing cities, it was "assumed that family life could best thrive in a semi-rural environment" (Ames 2000, 34; Jackson 1985, 62). The home was revered as "a spiritual and physical shelter from the competition and exploitation of industrial, capitalist society, and a training ground for the young ... a haven in a heartless world" (Hayden 1984, 68-69). In fact, the home itself came to reflect concepts of the family ideal. During

the railroad era, Victorian house styles were “a visual metaphor” for the “hierarchical Victorian family with a need for distinct zones for different activities” (Jackson 1985, 59).

Since the Industrial Revolution took men to work outside the house, the woman assumed responsibility for the home where she was expected to create the perfect, nurturing environment for her husband and children. Her personal services as wife and mother elevated the suburban woman to a near-sacred status as the “minister of home” whose only focus was her children and husbands’ needs (Hayden 1984, 23). As part of this “cult of domesticity” it was felt that by “careful design of the physical structure ... could actually be a heaven on earth” (Jackson 1985, 49). Thus, the suburban house in a garden was venerated as the ideal setting for this exclusive nurturing and “nature surrounding the home reinforced the belief in woman’s naturally, biologically determined role within it” (Hayden 1984, 69).

The complex floor plans of the ornate Victorian houses, divided into distinct, boxy rooms, were possible because of the lightweight balloon-frame method of construction, invented in the 1830s. This method used two by four inch studs instead of the traditional heavy post and beam framing system, and thereby accommodated a greater range of architectural forms (Ames 2000). In addition to the house, railroad suburb estates often had other outbuildings, including barns and servants’ quarters (Ames 2000; Jackson 1985).

Homeownership in this era was expensive because mortgages were not widely available and there was a stigma attached to borrowing money. Therefore, well-to-do families usually paid cash outright (Ames 2000). The expense of traveling by rail also helped ensure that these suburbs were accessible only to the wealthy (Fishman 1987).

STREETCAR SUBURBS

Personal transportation became cheaper with the arrival of the streetcar in 1888. It was also faster than the cable car or horse-drawn tram, allowing travel speeds to reach 14 miles per hour. In addition, the streetcar created access to cheaper land at the edge of the city and land speculation became common. By 1900 a growing class of middle and upper middle-class families could afford to live on the suburban fringe and developers increasingly catered to the working class as well. Suburban growth typically occurred in a radial pattern away from the central business district, with homes located within a ten minute walk from the streetcar lines, allowing workers to reach their destinations in one third the time required for walking (Ames 2000; Jackson 1985).

The streets in these suburbs were often grid pattern extensions of older city sections and the streetcar subdivisions tended to be rectilinear, with small narrow lots. Freestanding houses were the preferred housing type, as other classes aspired to the physical form representative of the lifestyle and values introduced by the well-to-do in the railroad suburbs (Ames 2000).

As houses became available to the middle class, the preference changed from the ornate Victorian to the simpler Prairie style and bungalow, which were within the means of more modest income families (Ames 2000; Fishman 1987). While Prairie style homes were still typically two stories, most bungalows were one-and-a-half or one story. Both forms began to emphasize horizontal lines with their low-pitched roofs and wide overhanging eaves (McAlester 1984). This transition from the vertical “stuck up” Victorian to housing forms that accentuate the horizontal has been hailed as “the great achievement of American domestic architecture” (Fishman 1987, 148).

These newer dwellings were relatively open, with a compact plan that was architecturally plainer than earlier Victorians (Ames 2000). Originating in Chicago in the late 1800s, the Prairie style houses became popular with the upper middle-classes in many Midwestern suburbs. They were soon followed by the smaller, bungalow styles in the early 1900s, which were primarily inspired by two California builders. The one-story Craftsman style bungalow “quickly became the most popular and fashionable smaller house in the country” (McAlester 1984, 454). In order to fit, the smaller bungalows were placed sideways on narrow lots with their gable ends toward the street; barns and stables were absent from the landscape. The long, narrow lot was suitable to a family lifestyle where much of the living took place in the front of the house. Here the front parlor offered a formal buffer between public entertaining space and private zones within the house, while the front porch functioned as a buffer between public and private space outside (Ames 2000; Colean 1944; Jackson 1985).

The absence of rigidly segmented men’s, women’s, and children’s spaces in these newer housing forms was motivated by a desire for “a greater degree of togetherness for the family” (Fishman 1987, 150). There were now common areas within the house where the family gathered together in a testimony to domestic openness, which has been heralded as the “true legacy” of the suburban home. Oftentimes the focus was around a central fireplace – a symbol of the home’s unity (ibid.)

The housing, often built from pattern books, continued to employ the less expensive balloon-frame method. In addition to the Bungalow and Prairie style houses, a number of period revival architectural styles were introduced. Builders could copy plans from *House and Garden* magazine, thus beginning a new American tradition of standardized homebuilding. However, there was still little attempt to coordinate the overall subdivision process by bringing land purchase, subdivision, improvements, home construction and sales under the purview of a single individual or firm (Jackson 1985).

The system often netted substantial profits for moneylenders at the expense of the customers buying lots and constructing homes. Most land developers operated with no capital, instead relying on borrowed money to buy their land and construct roads, lighting and drainage. The improved lots were then sold to customers who generally obtained their mortgage directly from the developers for

interest rates that could be as high as fifteen percent with a short-term loan. Developers quickly unloaded these mortgages at discounted rates to recoup their cash and pay off loans extended for their initial outlays (Fishman 1987).

Construction of the home often required a second mortgage and a significant cash investment, usually 30 to 50 percent of the appraised value. Three-to-ten year renewable mortgages were available with interest rates from two to five percent, rising as high as fifteen percent in the 1920s. Only interest was paid during the mortgage term which meant homeowners had to come up with a balloon payment at the end or refinance for another term, and most renewed their mortgages several times before paying off the house (Ames 2000; Fishman 1987; Jackson 1985).

EARLY AUTOMOBILE SUBURBS

In the early 1900s, the streetcar suburbs were eclipsed by yet another form of suburban development, spawned by a new transportation technology -- the invention of the car. The automobile proved to be a defining influence on the development of America's suburban neighborhoods and was single-handedly responsible for shaping the amorphous form of entire cities such as Los Angeles and other sprawling metropolitan areas (Fishman 1987). Its dramatic impact on suburban development is readily apparent in a number of striking historical trends.

Henry Ford introduced the techniques of mass-production in 1908 and his automobile was the first manufactured good built using these methods. In just two short years there were nearly a half million cars on the road. Over the next twenty years the number of automobiles multiplied more than fifty times exceeding almost 27 million by 1930. So great was the car's impact that in the twenties, for the first time in American history, the suburbs expanded more rapidly than the cities (Ames 2000). In fact, between 1920 and 1930 America's central city districts increased by nineteen percent while outlying areas increased almost 40 percent. Although overall rates fell in the thirties during the Depression, with central cities growing five percent compared to fifteen percent on the edges, this trend still indicates that suburbs were growing three times as fast as the urban core (Coleman 1944).

Widespread availability of the car meant people could live farther than a ten-minute walk from the streetcar and rail lines. The automobile allowed access to land between radial streetcar routes although there were virtually no paved roadways prior to 1920. Also, the extension of arterial grid road systems for automobile travel made every spot accessible without passing through a central point as necessitated by a radial mass transit system with a downtown hub. In addition, fringe land even further out was cheap, thus making homebuilding in these locations more affordable. Decreased densities in residential developments and self-contained subdivisions were possible without the limitations on land access that had been imposed by fixed transportation routes. As a result, the favored curvilinear street patterns and larger lots with detached single-family homes, which provided the privacy and sense of country sought by suburbanites, began reappearing in greater numbers (Ames 2000; Fishman 1987; Jackson 1985).

Following World War I, many union and corporate business leaders began campaigning for a “family wage” that was high enough to assure that male workers could support their wives and children without the latter having to work in industry themselves. This served both to lower the threat of wage competition by decreasing the labor pool and to increase consumption by expanding domestic markets for manufactured goods such as furniture, appliances and automobiles purchased for the family-oriented lifestyle. It was generally agreed among union and manufacturing leaders that “more spacious, mass-produced housing was essential to enable workers and their families to consume” and that home ownership with long-term mortgages promoted stable employment by essentially tying workers to their jobs (Hayden 1984, 33).

The private suburban house continued to represent the ideal of a retreat from the world of work, a place where a husband’s “physical and emotional maintenance would be the duty of the wife.” The role of wives as home managers in charge of the care of their spouse and children expanded to include that of “Mrs. Consumer” who made important purchase decisions about the stove, refrigerator, vacuum cleaner, washer, and carpets required in her suburban dwelling. Advertising played an increasingly influential role in promoting the private suburban house as a setting for these consumer purchases (Hayden 1984, 34).

Housing styles in the early automobile suburbs remained relatively simple. The open floor plan of the bungalow was sometimes put in a more classical, two-story, period revival style. Garages also “became respectable structures” on the lot and moved closer to the house (Ames 2000). Following the stock market crash, there was a decided rejection of Victorian traditions and the old order they represented, which translated into much simpler housing designs (Stewart 1979).

In the thirties, “extravagant pretenses were [further] curbed” as architects, following the lead of Frank Lloyd Wright, “answered the need for simpler lifestyles and servantless domesticity by reviving [the]... notion of the functional house” (Jackson 1985, 185). The functional house had been previously introduced by European architects who were guided by a scientifically based belief that good architectural designs grow from a melding of economic forces and available technology. They spoke of the house as a “machine for living” and emphasized simplicity, decidedly rejecting ornamentation. As a result, International style homes were characterized by a horizontal emphasis, flat roofs, large expanses of wall with exposed steel and glass that permitted the yard to extend from the inside living spaces and by interior spaces that could be merged for many different functions (Stewart 1979, 470). Wright’s resulting Usonian style house with one-story, a low pitched roof, lots of glass, and carports reflected the influence of indigenous, vernacular architecture (particularly in California) – a style that merged progressive planes with open plans, and natural materials that conformed to the landscape (Jackson 1985; Martin 2001).

The modern ranch style house also first appeared in the thirties. This style was characterized by a single story rectilinear or "L" shaped form, typically placed broadside to the street to maximize façade width, a low-pitched roof, and usually included an attached garage or carport. Moderate to wide overhanging eaves and simple detailing loosely based on colonial, Spanish or western precedents also helped distinguish this style. Covered porches or patios were common. Earlier ranch styles often had a patio running the length of the front façade. Later, a small one was typically placed near the front door and a much larger one off the rear façade, which functioned as a private, outdoor living space. An open plan prevailed with undifferentiated public areas for living, dining, kitchen and recreation spaces that were separated from the private bedroom and bathroom areas by a hallway. A key feature of the ranch design was an integration of the indoor living spaces with the outside through the use of large windows, glass doors and patios opening off the living areas. This provided an easy relationship with the outdoors and emphasized an informal and unpretentious lifestyle (Fishman 1987; Martin 2001; McAlester 1984; Peterson 1989).

The low profile and rambling plan of the ranch house style were influenced by vernacular architecture of the western United States (Martin 2001). Of particular inspiration were the Spanish Colonial styles from the early southwest with their low-pitched roof, single story, and porch spanning the front façade (McAlester 1984; Peterson 1989). The horizontal lines and glass expanses characteristic of Wright's Prairie style architecture and the European International style houses were also an inspiration (Jackson 1985; Martin 2001; McAlester 1984). Some scholars have even pointed to the Craftsman bungalow as a source of influence. California designer Cliff May popularized the style in a series of plans that began appearing in magazines and plan books in the thirties (Martin 2001).

The Federal Housing Administration

Historically, the United States government left responsibility for the nation's housing supply to the private market. However, this changed with the advent of the Great Depression in 1929, which "inflicted crippling blows on both the housing industry and the homeowner" (Jackson 1985, 193). Residential construction dropped precipitously between 1928 and 1933, as did expenditures for home repairs, both falling by over 90 percent. Furthermore, residential foreclosures skyrocketed and by 1933 half of all home mortgages were in default and over a thousand homes per day were entering foreclosure. The construction industry also experienced massive unemployment (Jackson 1985).

The government was compelled to intervene. Believing the housing crisis would drag down the entire economy while also recognizing that "the sentiment for home ownership is embedded in the American heart" (Jackson quoting President Hoover 1985, 193), the federal government officially entered the housing business in 1933 thru its creation of the Home Owners' Loan Corporation. This entity refinanced over a million short-term mortgages and replaced them with new, long-term loans created pursuant to the 1934 National Housing Act. The National Housing Act also

created a stable network of savings and loan institutions whose deposits from small savers were directed toward home construction and mortgages (Ames 2000; Fishman 1987; Weiss 1987).

In addition, this Act established the Federal Housing Administration (FHA). Through the FHA, the federal government insured private, long-term mortgages for home construction and purchase. Designed to improve housing standards and conditions, make affordable financing available, and stabilize the mortgage market, the legislation was also crafted to alleviate high unemployment in the construction industry by creating favorable conditions that facilitated homebuilding (Ames 2000; Jackson 1985; Mitchell 1985; Weiss 1987).

The voluntary FHA programs benefited both builders and homebuyers. Developers no longer had to struggle from one short-term loan to the next because they could now borrow money with FHA mortgage guarantees at favorable interest rates. This assured them an adequate supply of capital to purchase, subdivide, and improve land. More importantly, without the pressure to quickly sell improved lots in order to repay high rate loans, subdividers could undertake the homebuilding process as well. For the first time in the history of neighborhood development, “both economies of scale and economies of speed” were introduced into the suburbanization process though the full impact of this would not be realized until after the war (Fishman 1987, 176).

Homebuying was also greatly facilitated by FHA guidelines. Under the new program, a potential homebuyer could borrow up to 90 percent of the appraised value of the home, thereby requiring only a 10 percent down payment. The mortgage repayment term also increased substantially to 25 or 30 years, thus reducing the monthly payment. Also, for the first time, repayment terms covered both the interest and principal in a fully amortized loan. In addition, FHA provided for reasonable interest rates on mortgages they insured; in 1938 they were authorized to insure loans with a maximum rate of 4½ percent (Ames 2000; Fishman 1987; Jackson 1985; Weiss 1987).

Through a policy of only insuring loans on residential construction that met objective, written standards, FHA regulations began to have a major impact on neighborhood design. Four seminal publications with guidelines and illustrative graphics were put out by the agency to direct homebuilders seeking FHA insured financing: *Planning Neighborhoods for Small Houses* (1936), *Planning Profitable Neighborhoods* (1938), *Subdivision Development* (1940), and *Successful Subdivisions* (1940). Standards included minimum lot size requirements, setback from the street and adjacent structures, and a preference for the curvilinear street pattern. In addition, FHA underwriters were taught to measure the quality of residential areas based on eight weighted criteria. Projects that involved a high degree of risk in any area were not insurable. The most important of these criteria were “relative economic stability” and “protection from adverse influences” (Jackson

1985, 207). The FHA also recommended subdivision regulations and restrictive covenants to help a neighborhood maintain stability (Jackson 1985; Weiss 1987).

The FHA programs were immediately effective. Builders went to work again and housing starts increased from 93,000 in 1933 to 332,000 by 1937 and 619,000 in 1941. The favorable financing terms also meant it was often cheaper to buy than to rent (Jackson 1985; Weiss 1987). Home ownership was further promoted by the federal government with introduction of the personal income tax deduction for mortgage interest beginning in 1939 (Hayden 1984).

Though successful in many ways, FHA programs also contributed to decline of inner-city neighborhoods. By favoring single-family construction and insuring only small loan amounts for repairs to existing structures, the policies had the effect of moving construction to the fringes, where land for single-family homes was available, and discouraging investment in maintenance or modernization of existing, urban locations. Furthermore, the quality criteria measured by the FHA underwriters allowed personal and agency bias to favor middle-class, all-white subdivisions in the suburbs (Jackson 1985). In fact, in its *Underwriting Manual*, the agency warned "if a neighborhood is to retain stability, it is necessary that properties shall continue to be occupied by the same social and racial classes" (Jackson 1985, 208).

Land Use Controls

Builders also influenced subdivision design in the twenties and thirties with their use of covenants as private land use regulations. Introduced to maintain long-term property values by mandating or prohibiting certain behaviors, covenants are private contracts between the original developer and all subsequent buyers and are legally enforceable as deed restrictions. FHA policies, encouraging the use of restrictive covenants by builders, recommended a wide range of physical planning issues be addressed by the deed restrictions including how the house was placed on its lot, property maintenance, architectural design, and even racial exclusion in some cases (Ames 2000; Weiss 1987).

In addition, builders pushed for public land use controls by urging communities to adopt subdivision regulations. These ensured coordination with other developments regarding access to highways, parks, and other public facilities and alignment of streets with existing and future roadways. The regulations also promulgated and enforced design and engineering standards in variables such as street layout and lot sizes to enhance the marketability of residential subdivisions. In addition, they acted to control the supply of housing by regulating procedures and increasing start-up costs to reduce competition from curbstome builders (Weiss 1987).

At the same time, public land use controls in the form of zoning contributed to the design of subdivisions exclusively for residential use. In 1924, the U.S. Department of Commerce published the Standard Zoning Enabling Act (SZA), which

most states adopted in some form by the end of the thirties. The SZEAs were a proposed model code for states for the purpose of authorizing municipalities in their jurisdiction to use the constitutionally granted police power to zone and regulate land uses. In 1926, the U.S. Supreme Court upheld the constitutionality of zoning in a landmark case (*Euclid v. Ambler*, 1926). Furthermore, the *Euclid* court threw its firm support behind “the exclusively residential development of single-family houses as ... the most inviolate of land use zones” thereby establishing the primacy of single-family land uses within a zoning hierarchy (Ames 2000, 17).

Builders

Continuing through the twenties, development of residential land and the construction of houses were independent functions, usually performed by separate developers and builders “each on his own shoestring and passing along the high costs of production and credit to the [home]buyer” (Fishman 1987, 193). The Depression, however, dealt a mortal blow to this old system, making it impossible for the housing industry to turn a profit without somehow reducing construction and financing costs. The response to this dilemma came in the early thirties with passage of the landmark FHA legislation that made affordable financing available to both developers and homebuyers and introduced stability in the housing industry. As a consequence, real estate entrepreneurs began to spearhead the entire residential development process, dramatically improving the efficiency of housing production and setting the stage for future mass homeownership. The FHA induced operative builders to plan and design according to their specifications through a regulation known as the “conditional commitment”. This regulation provided a guarantee for mortgage insurance to lenders offering financing for subdivision production and housing sales to those developers whose plans met FHA underwriting guidelines; it was also a commitment to insure all the individual mortgages of properly qualified homebuyers (Fishman 1987; Weiss 1987).

The expanded role of builders was pivotal. Much emphasis was placed on advanced, large-scale subdivision planning aided by public coordination and regulation. Developers now acquired the land, planned and improved it, built the houses and sold them. This ensured residents a ready-made community, absent of the vacant lots and uncertainty that often characterized earlier land speculation practices. The traditional curbside builder who simply put together the physical structure was gradually eclipsed by a new type of builder who was concerned with long-term neighborhood stability and land development patterns beyond the single home site (Ames 2000; Weiss 1987).

This new type of builder has been called an operative builder, merchant builder, or community builder. “Operative” or “merchant” builder frequently referred to a developer who engaged in land subdivision, planning, tract home building and selling. The concept further evolved with the emergence of the “community builder” who might include additional amenities such as parks, schools, shopping centers, and community facilities. Though this new system of homebuilding first emerged in the thirties, many homes in these early automobile suburbs continued to be built on

contract with the individual homeowner first buying the lot, and then hiring a builder to construct the house. It would take the explosive demand for housing that occurred in the postwar era to fully transform the residential subdivision building industry into an efficient new system dominated by merchant and community builders (Fishman 1987; Grebler 1950; Weiss 1987).

NATIONAL POSTWAR TRENDS

AUTOS AND ROADWAY EXPANSION

America's car culture reached a new pinnacle in the postwar period facilitated by consumerism, technology advances, and national transportation policies. In fact, it was the car's enormous popularity that became one of the defining influences on postwar subdivision development. In addition to encouraging suburbanization by making outlying agricultural and undeveloped land readily accessible, the automobile greatly impacted the appearance of postwar neighborhoods in terms of both housing design and the bigger pattern of roadways and highways (Ames 2000; Stewart 1979; Jackson 1985; Rowe 1991).

The growing influence of the automobile is evident in the numbers. Between 1945 and 1973 motor vehicle registrations nationwide quadrupled, climbing from 31 million to over 125 million. By 1950 a majority (60 percent) of American families owned at least one vehicle. Over the next twenty years car ownership continued to increase as did the number of cars per family. By the early seventies over 80 percent of all families owned a car and over a quarter of them owned two (Statistical Abstract of the United States, 1947 & 1974).



Figure 4 Ad Promoting the Car as an Integral Part of the Home

The large numbers of vehicles necessitated the construction of new highways and roads. Interest in automobile transportation technology had already been building since before the war. The 1938 Federal Aid Highway Act had initiated a study to investigate the feasibility of building superhighways across the United States. A plan to build 26,000 miles of free highways connecting cities across the country was outlined the following year and marked a shift in traditional federal policy focus from rural roads toward metropolitan areas. That same year at the 1939 New York World's Fair, General Motors' enormously popular "Futurama" exhibit dazzled visitors by introducing projected travel technologies in 1960. It depicted miniature model superhighways with 50,000 automated cars going past farms on their way to city centers, elevated freeways, and expressway traffic moving 100 miles per hour (Jackson 1985). The German autobahn, constructed in 1935, was also influential because of its advanced design of geometric roadway configurations, including route locations and surface materials, that improved drivability and made

an almost "effortless path along which high-speed automobile movement could take place" (Rowe 1991, 192).

Building upon this interest, in 1944 The Federal Aid Highway Act was passed, ushering in "the golden age of highway construction" which lasted from approximately 1945 to 1970 (Rowe 1991, 194). The Act called for almost 34,000 freeway miles to deal with traffic problems and city congestion. In making the pitch for a metropolitan freeway system, it was inferred that bigger and better highways were needed so more people could "partake of suburban life." It was also noted "the automobile has made partial escape from the undesirable state of affairs [of inner city blight] easy and pleasant for some of the population [and] suburban business centers have followed the clustering of suburban homes" (Rowe quoting The National Interregional Highway Committee 1991, pp 194-195). As a result of the 1944 Act, most major cities began work on arterial highway improvements with federal funds paying much of the cost. An extensive, multidirectional grid of highways and arterial roads soon emerged in the postwar suburbs, which de-emphasized the primacy of a central business district within a single urban core (Ames 2000; Fishman 1987, 191-192).

But it was not enough. Automobile ownership continued to explode and businesses were increasingly using trucks for transportation of commercial goods (Ames 2000). In addition, the Cold War engendered a nationwide fear of an atomic attack. Not only would an interstate roadway system increase capacity and improve trucking commerce, but it was felt that it would help decentralize existing larger cities into smaller settlements and "permit quick evacuation of target areas" should key cities be attacked (Jackson 1985, p 249).

As a result of these pressures, a variety of lobbyists began to push for a more elaborate expressway system. They formed a broad-based interest group that included oil, rubber, asphalt, and construction industries as well as car dealers, trucking and bus companies. Banks, advertising agencies, and labor unions also joined in the coalition and real estate groups and homebuilders applied additional pressure, hoping highways would spur housing development and increase prices. Their efforts culminated in passage of the 1956 Interstate Highway Act, which called for a 41,000-mile system of national roadways with 90 percent of the tab paid by the federal government. Though ostensibly the Act's main purposes were to make safer highways, reduce congestion, decrease transportation costs for businesses, and provide an evacuation network in case of nuclear attack, the highway system also encouraged growth out from the urban centers and disinvestments in public transportation. In the late fifties construction began on the interstate highway system, which soon began to visibly influence patterns of suburbanization nationwide (Ames 2000; Jackson 1985; Rowe 1991).

SOCIOECONOMIC AND CULTURAL TRENDS

The expansion of car ownership and roadway miles worked in conjunction with a number of additional factors to influence postwar subdivision patterns.

Specific demographic, economic, and federal government policies directly impacted housing production rates while cultural influences played a less obvious role.

Housing Americans became both a national priority and big business in the postwar era and for the first time housing starts by month and year were an important economic indicator (Hayden 1984; President's Committee on Urban Housing 1968). Rampant suburban growth made construction the major industry in many communities, especially out West. Residential construction in particular was an increasingly effective stimulant to the national economy and by the late sixties housing was considered "a premier U.S. consumer good" (President's Committee on Urban Housing 1968, 114). After the war ended new residential construction contributed less than one percent to the gross national product (GNP). But it quickly rose, accounting for more than six percent by 1950. Housing construction leveled off to about three percent by the late sixties. By then residential land and structures represented nearly one third of America's total national wealth (President's Committee on Urban Housing 1968; Sumichrast and Frankel 1970).

In terms of employment, the construction of an average single-family detached home provided over two man-years of work, with half on site and the other half off-site, and a total GNP investment averaging \$20,000 per structure plus \$2,500 per lot for site improvements. This translated to almost three million jobs and two million man-hours of employment for every one million single-family homes constructed. In addition, direct expenditures in service industries for real estate brokers, title company costs, loan fees, and fees for appraisals and land surveys, as well as real estate transfer taxes to the local and federal government generated an additional \$1,000 per unit to the GNP. Finally, new housing triggered purchases of other consumer goods such as appliances, furnishings, landscaping, and maintenance equipment, estimated to have added another \$3,000 per unit to the GNP. In total, by the end of the sixties more than one fourth of America's new capital investments went into some aspect of the housing industry every year (President's Committee on Urban Housing 1968; Sumichrast and Frankel 1970).

In addition to providing a picture of economic conditions, postwar housing production trends reflected demographic influences. As the number of households increased, there was greater demand for housing and higher production rates. In fact, the tendency for households to increase faster than population has been the key to the increased housing demand and production in America since the late 1800s. Also, the age distribution of the population affected household formation rates, with the highest number coming from the 20 to 34 year group (Doan 1997).

Household characteristics also impacted housing demand. Families, and particularly those in the thirty to forty age group with children, were the biggest consumers of single-family homes. Households comprised of a couple or singles, whether they were younger or older, tended to shift housing demand to multi-family options such as apartments, condominiums, and townhouses. In addition, household composition such as the presence or absence of children influenced housing designs,

including their plan and features (Doan 1997; Stewart 1970; Sumichrast and Frankel 1970).

Standardizing the American workweek also facilitated housing development. Beginning in the thirties, 40 hours per week became the norm. This change freed up time for longer distance commuting, which was less feasible when workers were putting in 60 hours at the factory. In addition, the extra time translated into free weekends around the home. As a result, in the postwar era a national home and garden improvement craze emerged. There was also a new emphasis on home leisure and entertaining. Housing plans reflected these influences through an increasing number of home additions and with certain features such as family rooms and patios and garages that also functioned as workshops (Stewart 1979; Martin 2001; Rowe 1991).

Developers fostered the idea that the detached single-family house “would help the veteran change from an aggressive air ace to a commuting salesman who loved to mow the lawn [and] who would also assist his wife to forget her skills as Rosie the Riveter and begin to enjoy furnishing her dream house in suburbia.” Furthermore, “postwar propaganda told women their place was in the home, as nurturers; men were told that their place was in the public realm, as earners and decision makers” (Hayden 1984, 42). Advertisers used themes of fear, guilt and love to promote the family-oriented postwar home and the household products required to properly furnish and maintain it. In addition, a “culture of motherhood” promoted in the postwar era suggested that good mothers should spend more time with their children and the home was endorsed as the perfect setting for doing this (Hayden 1984, 77). As a result the fifties suburban house has been criticized by some for existing “precisely to isolate women and the family from urban economic life” (Fishman 1987, 195). By the sixties, however, this pattern was changing as more women entered the workforce. The single-family detached house in the suburbs thus began to evolve from a family refuge outside the city to a convenient place from which both spouses could reach their jobs, which were increasingly located in the same suburban sites as the homes (Fishman 1987).

In the fifties more than six million single-family housing starts were financed nationwide, accounting for 81 percent of all new residential units. Over the next thirteen years, the detached single-family home continued its reign of popularity in terms of new housing starts though its overall dominance in the residential market declined. In the sixties single-family housing starts nationwide increased to 9.2 million, while at the same time their total share of the new housing units fell to 64 percent. Between 1970 and 1973 4.4 million single-family detached housing starts were recorded, comprising 55 percent of all new residential. Beginning in the late fifties, the single-family detached home was increasingly in competition with duplexes and other multi-family structures such as apartments, condos and townhomes (Statistical Abstract of the United States 1961 & 1974).

Though the neighborhoods were commonly thought to be nearly identical in terms of physical and social characteristics, several studies have challenged the popular perception of postwar suburbia defined by a mass sameness in the housing and culture. Instead, these neighborhoods were shown to reflect the changing nature of the population in terms of age, family size, economic status and physical mobility and, indeed, to include variations in class, economic function and even ethnic and racial composition. By the late sixties, the suburban lifestyle was clearly in transition and was not considered as conformist or monotonous as previously perceived. The housing and subdivision settings also became more distinguishable as individual tastes led to modifications and landscaping matured (Martin 2001; Rowe 1991).

There are specific socioeconomic trends and historic influences from the postwar era that logically defined three chronological divisions in the nation's housing production trends. These general trends have been categorized as the "postwar housing boom" from 1946 to 1956, followed by the "steady as she goes era" from 1957 to 1965, and finally the era of "turmoil in the body politic and in housing" that spanned the end of the period from 1966 to 1973 (Doan 1997, 7). The freestanding single-family homes that defined the typical postwar subdivision can be characterized more specifically in terms of the boom years, followed by a period of leveling out, and then by their fade beginning in the mid sixties. The variety among these periods highlights how erratic national housing production trends could be, a situation that was especially true in local housing markets (President's Committee on Urban Housing 1968).

The Boom Years, 1946-1956

Until 1946 the financial fallout of the Depression followed by a shortage of construction materials and labor during the war combined to significantly constrain the construction of new housing units. The first postwar housing production trend was a ten-year boom that lasted from 1946 until 1956. It came as the answer to an unprecedented housing shortage that gripped the nation after World War II. During the initial postwar housing period, an annual average of 1.5 million new housing units were produced, ranging from a low of one million in 1946 when materials and labor were still scarce to a high of two million units in 1950. Most of these units (84 percent) were single-family homes (Doan 1997).

Skyrocketing marriage and birth rates as nine million veterans were demobilized between 1945 and 1946 also served to fuel the housing boom (Doan 1997; Kaiser 1968). In fact, the model 1945 family was "the veteran, his young wife, and their prospective children" (Hayden 1984, 41). In 1946 the marriage rate was at a historic high, followed by a record setting birth rate that turned into an eighteen-year baby boom. These demographic changes caused a sudden increase in total population and number of households. As a result, by 1947 six million families nationwide were doubling up with family or friends while another half million lived in quonset huts or temporary war housing purchased from the government. At least half of these families had the cash, income and desire to live in their own homes,

translating into a record demand and seller's market for housing (Ames 2000; Doan 1997; Stewart 1979; Hayden 1984; Jackson 1985; Martin 2001).

The nation's sound financial health also strengthened housing demand in this early boom. Mortgage debt was at an all-time low of eighteen percent in 1945, rising to 38 percent by 1956. An expected postwar recession did not materialize and there was actually an increase in nonfarm employment between 1945 and 1946. There was also a redistribution of jobs as defense corporations gave women's wartime positions to returning veterans and successfully converted many defense industries to production of consumer goods (Doan 1997; Hayden 1984). Furthermore, the middle class in America continually expanded after the war partially because of a redistribution of the labor force during the period. This redistribution involved a shift from labor and blue collar jobs to service and professional employment (Stewart 1979, 475).

The postwar population was more affluent in terms of savings and income than any earlier generation of Americans had ever been. The nearly full employment and the constraint on spending enjoyed during the war caused disposable income to double between 1940 and 1945. Most of these personal savings were channeled into war bonds or commercial bank and savings bank deposits (Doan 1997; Hayden 1984).

Lending institutions also enjoyed a parallel rise in assets. Following the war most liquidated their government bonds, which were yielding two percent, in favor of mortgage or commercial loans that were yielding between four and six percent. This shift provided an abundance of loanable funds and offered borrowers the lowest mortgage interest rates ever seen (Doan 1997).

A number of government policies also promoted the surge in housing production during this early postwar boom. The federal income tax rates had risen substantially during the Depression and World War II making the deductibility of mortgages and property taxes, introduced in 1939, an attractive feature of homeownership. The homeowner ratio increased from about 42 percent in 1940 to almost 59 percent by 1956 (Doan 1997).

In anticipation of a postwar housing shortage, in 1944 Congress passed the Serviceman's Readjustment Act, better known as the GI Bill. The passage of this bill helped facilitate housing production and homeownership by authorizing the Veteran's Administration (VA) to guarantee mortgage loans to returning war veterans for the purchase, construction or improvement of homes. One of the key provisions allowed veterans to buy a home with no down payment (Doan 1997; Stewart 1979).

The government also passed additional legislation to accelerate housing production and channel much of it into the lower priced range, in an effort to confront the exceptionally strong demand for housing that was increasing real estate prices and construction costs for scarce materials and labor. The 1946 Veterans' Emergency Housing Act extended price and rent control for new housing to

peacetime conditions, allocated materials and facilities for housing construction, authorized premium payments for production of building materials, provided a preference to veterans in new sales and rental housing, and extended FHA mortgage insurance to builders of new sales and rental housing under Sections 603 and 608. In addition, FHA mortgage insurance continued to be offered to individual homebuyers under the earlier provisions of the National Housing Act (Doan 1997; Stewart 1979).

Through FHA and VA mortgage guarantees, the government insured one third of the total outstanding mortgage debt nationwide in the early ten-year boom. The VA guaranteed 60 percent of this share. The stability in housing values, which had been heavily influenced by FHA's uniform underwriting procedures, minimum property standards for new construction, and improved land planning practices also facilitated emergence of a nationwide secondary mortgage market. The Federal National Mortgage Association (FNMA), or "Fannie Mae" organized this market and by 1948 was also dealing in VA mortgages. FNMA functioned to effect transfer of mortgage funds from areas of surplus to deficit regions and helped stabilize housing production by managing the purchase and sale of mortgages (Doan 1997; President's Committee on Urban Housing 1968).

Government programs continued to have a positive ripple effect on broader housing and mortgage markets. The success of FHA and VA operations and the developing secondary mortgage market also stimulated the mortgage banking industry. By 1956 one third of all FHA home mortgages originated with mortgage companies. Another institution, the Federal Home Loan Bank Board, advanced monies to savings and loan associations, which helped contribute to their expansion and future impact on both mortgage financing and housing production (Doan 1997). By the late sixties financial institutions were considered "the single most important locus of power in the [housing] industry" (President's Committee on Urban Housing 1968, 117).

Leveling Out, 1957-1965

By 1957 early postwar demand had been satisfied and housing production was no longer "a burning public issue" (Doan 1997, 72). After production dropped by almost 25 percent from 1955 levels it leveled out and remained steady through the mid sixties. Housing starts also reflected regional population realignment between 1957 and 1965, with 36 percent of new starts in the South and 24 percent in the West. The baby boom continued during this second period of the postwar housing era, with the birth rate remaining at 24.1 per thousand until 1965 when the rate noticeably abated to 19.4 per thousand. The migration rate from rural to urban or suburban also remained strong, accounting for 24 percent of the net increase in nonfarm population during this period, down from 31 percent for the initial postwar boom (Doan 1997).

Though there were two minor recessions, one in 1957 and the other in 1961, during the "steady as she goes" era, there was an overall 23 percent rise in real

household income, reflecting a trend in which median household income increased at a faster rate than consumer prices. In fact, the median income for American families doubled between 1950 and 1970 and this change translated directly into consumption of new houses throughout the postwar era. Mortgage lending continued at a frenzied pace, and the outstanding national mortgage debt as a proportion of disposable income rose to 54 percent by 1965. Savings and loan associations were the big lenders of the day, accounting for 41 percent of the residential mortgage debt by the mid sixties. They filled a void left by life insurance companies who shifted investments to commercial lending which was more profitable. In addition the savings and loan associations held an advantage over commercial banks because they paid almost one percent less for savings deposits. These associations also enjoyed a wider geographic spread than mutual savings banks. Commercial banks and mutual savings banks continued to each account for about fifteen percent of mortgages issued (Doan 1997; Fishman 1987).

One of the more significant trends in housing production was the shift from single-family to multi-family units during this period, with single-family starts declining to 64 percent of the total by 1966. This trend was partially attributable to a drop in the number of men and women between the ages of 30 and 40 during the sixties. By 1957 new households were forming at a faster rate than population increased because children were marrying or were leaving home at an earlier age to establish their own homes. These relatively young, childless households translated into a somewhat sluggish demand for single-family housing while apartment unit development reached historical highs, accounting for almost half of new housing units built by 1969 (Doan 1997; Stewart 1979; Sumichrast And Frankel 1970).

The increasing popularity of multi-family housing was also related to the influence the continuing decentralization of employment had on stimulating housing demand for both single-family and multi-family types in outlying, suburban locations. Between 1950 and 1970 the postwar suburbs emerged as separate socioeconomic units attracting 75 percent of all new manufacturing and retail jobs. This brought about a corresponding rise in the number of specialized service jobs like banking, accounting, legal, and advertising. At the same time, central cities lost thousands of jobs. Therefore, by 1970 the number of jobs located in the suburbs outnumbered those in the central city (Fishman 1987).

This shift to the suburbs was influenced by several factors. Production methods changed to emphasize a more linear flow on a single level building versus the multi-storied factories they superseded. In addition, the transportation of manufactured goods increasingly relied upon trucking rather than rail service for distribution. Employers also left the central cities seeking more room and cheaper land in the new industrial parks of the postwar suburbs. At the same time, residents of these new suburbs sought employment and met other needs in their immediate community. Thus it was possible for suburban industries to find employees and other specialized services close by within the surrounding areas (Doan 1997; Fishman 1987).

Direct federal government influence in the mortgage and housing markets began to diminish in the late fifties. As the pool of eligible veterans declined, so did VA participation in guaranteeing mortgages, though FHA's participation remained stable. As a result, the percentage of loans guaranteed under government programs declined to one-fourth during this period, down from almost one-third during the early ten-year housing boom. An increase in conventionally financed multi-family mortgages also contributed to the government's waning influence in the single-family residential mortgage market (Doan 1997).

During the initial postwar housing boom and continuing into the sixties, the expanding economy and federal government policies facilitated the production of housing primarily for middle and upper-income families (Rice 1979). However, during the late fifties and early sixties there were other events, which, as they unfolded, would impact housing production in the last cycle of the postwar era. The two most significant of these events were America's involvement in the Vietnam War and the civil rights movement. The war brought on rising inflation, which combined with expanded domestic programs to have a noticeable effect on the focus of housing activities. In addition, the civil rights movement spotlighted discrimination in housing and the continual denial of equal opportunities in housing (Doan 1997).

The Fade of the Modern Freestanding Home, 1966-1973

Although the period from 1966 to 1973 was one of the most productive periods in the nation's history in terms of overall housing construction, beginning in 1966 social, political, and economic turmoil combined to bring about a change in housing production. The major change in housing however, was reflected in the decrease in market dominance of the single-family home which slipped to less than half of all housing units produced. In addition, policy changes altered the government's role which moved from an emphasis on housing for the middle and upper-middle classes to a focus on providing housing for low and moderate income households (Doan 1997; Rice 1979). Also, by 1972 spiraling inflation and a chaotic money market greatly constricted demand for the traditional single-family freestanding home. Buyers had to pay more for the house itself, and financing costs increased due to higher interest rates (Sullivan 1979).

Home ownership in the postwar era had reached an all-time high and nearly two-thirds of all families purchased a house during this period. However, the postwar "prescription for satisfaction" was "designed to satisfy a nation of predominantly white, young, nuclear families, with father as breadwinner, mother as housewife, and children reared to emulate these same limited roles" (Hayden 1984, 40). This left five main groups that were implicitly or explicitly excluded from the American dream, particularly in the forties and fifties. These groups included white women of all classes, white elderly working class and lower middle class, and minority men, women and elderly of all classes. A combination of mortgage lending practices and restrictive covenants served to enforce these exclusions. It was not until the late fifties and continuing into the early seventies that home ownership

opportunities opened up for many of these formerly excluded from home ownership as a result of federal policy changes (Doan 1997; Rice 1979; Hayden 1984).

Civil disorders associated with the civil rights movement prompted several short-lived political responses at the federal level related to housing. In 1967, President Johnson established two advisory commissions to investigate urban housing issues. The following year the President's Committee on Urban Housing ("the Kaiser Committee") completed their report. One year later, the National Commission on Urban Problems, also known as the "Douglas Commission", published their findings. Both bodies recommended that the federal government quickly enact legislation to provide massive funding to subsidize housing for low and moderate income families, who had been systematically excluded from the housing market through redlining and other discriminatory practices.

The response to these exclusionary housing practices included the largest-ever effort to subsidize housing for lower income families as well as the infamous urban renewal programs that were supposed to improve urban housing development (Doan 1997; National Commission on Urban Problems 1969; Rice 1979). The subsidized single-family housing program unraveled in 1973 when it erupted in a scandal of fraudulent practices and transactions involving every part of the American housing system including corrupt FHA officials, real estate agents and bankers. Consumers with little or no prior experience in purchasing a house were sold homes that were overappraised and overfinanced as well as constructed of such cheap building materials that they would not survive the life of the mortgage. Confidence in the FHA was particularly shaken as a result of this debacle and their influence in the housing market eroded (Sullivan 1979, 390).

Other more permanent legislative responses also emerged. The Fair Housing Act, which was part of the 1968 Civil Rights Act, outlawed segregation by race and cleared the way for approximately 40 percent of minority male workers and their families to attain home ownership. In 1973 the Equal Credit Opportunity Act passed, which forbade mortgage lenders from discriminating on the basis of sex. However, because there were still very few employed women who had the income to qualify as sole owners, home ownership became a real possibility for only 40 percent of female-headed households (Hayden 1984).

In addition to the social and political turmoil of the times, inflation began rising during the last period of the postwar era and contributed to bouts of economic disruption. The Vietnam War caused inflation rates to go from two percent in 1966 to six percent by 1973. By 1974 it was in the double-digits. Inflation caused yearly increases in all component costs of housing, but especially interest rates, materials, and land costs. In an early attempt to slow it down, the Federal Reserve tightened money policies in 1966, triggering a mortgage lending crisis, and later imposed brief price controls from 1971 to 1973. Both of these attempts disrupted the housing market but did little to curb inflation. In fact, in the last year of the postwar era inflation caused the price of a single-family home to jump by ten percent because of

a spike in costs for lumber, plywood, and labor and a rise in costs for petroleum based products such as roofing, plastics, plumbing pipes, and electrical wiring (Doan 1997; Rice 1979; Sullivan 1979).

There was an eighteen percent drop in housing starts in 1966 -- a twenty year low -- as a result of a "money crunch" brought on by a higher discount rate and increased reserve requirements for banks that were mandated by the Federal Reserve in an effort to battle inflation. The thrift institutions, which had been the major lenders of single-family residential mortgages, found themselves struggling for loanable funds as they were further handicapped by investment portfolios heavy in lower-paying mortgages while interest rates rose and depositors withdrew their money to invest in higher yielding securities. The major mortgage money was still coming from savings deposits in insurance, savings and loan associations, savings banks, commercial banks, and pension funds (Doan 1997; Rice 1979; Hendershott and Vilani 1985; Kaiser 1968).

Construction lending improved in 1967 and 1968 and overall housing demand recovered. This increase in demand was supported in part by the fact that unemployment was low and the median income kept up with inflation. But inflation was still a major problem, particularly for single-family housing production. By the early seventies, these inflationary costs had caused the price of an average single-family home to increase more than twice as much as wages. High prices contributed to a reduced demand for single-family freestanding houses. As a result, the boost in housing production for this period reflected an increased production of mobile homes and the construction of multi-family housing with two or more units, one quarter of which were condominiums or cooperatives, as well as an increase in loans for subsidized housing (Doan 1997; Simulchra and Frankel 1970; Sullivan 1979).

Changing demographics also contributed substantially to the shift to multi-family. During the decade of the sixties the number of household formations continued its postwar climb, as a result of an increase in both the marriage and divorce rates, creating a demand for additional dwelling units. At the same time, however, the birth rate declined, dropping the average household size. This reduced the total space required by the typical household, helping to shift demand to multi-family housing options (Rice 1979). Also, an increase in the number of persons in their twenties as well as a rise in the number of people over age 65, further influenced the change to more multi-family construction (Stewart 1979).

In addition, the Tax Reform Act of 1969 also stimulated private lending for multi-family housing. Finally, beginning in 1970 and continuing through 1972, the Fed's restrictive fiscal and monetary policies were reversed, a shift which also contributed to the significant rise in total housing production for this period (Doan 1997).

The government's direct participation in the mortgage and housing markets continued to decrease, however, with a four percent reduction in the outstanding

mortgage debt insured by FHA and VA programs between 1966 and 1973. At the same time, the influence of private mortgage lenders rose. Fannie Mae, which had become a private corporation pursuant to 1958 legislation, had almost five percent of all outstanding mortgage debt by 1973. Private mortgage insurance also increased from its 1966 level, rising to seven percent of the total debt on one to four unit dwellings at the end of the postwar era (Doan 1997).

FHA and VA housing starts continued to drop, falling to just seventeen percent compared to the ten-year postwar housing boom when they accounted for almost one third of all housing starts. The early seventies saw an especially rapid decline in FHA starts, which fell to only six percent of the total by 1973. The precipitous drop in FHA starts resulted from competitive 95 percent conventional home loans offered by the Federal Home Loan Bank, the increase in private mortgage insurance, and a phasing out of FHA housing subsidy programs. VA starts were also at their lowest levels in postwar years because the eligible pool of veterans from World War II had significantly diminished and there were still insufficient veterans from the Korean and Vietnam wars to compensate (Doan 1997; National Commission on Urban Problems 1969).

SUBDIVISIONS

“Financially, organizationally, and technologically, the roots of the [postwar] boom were in the 1930s [when] the building industry streamlined itself” facilitated by both FHA financing, land use controls, and the achievement of the mass-produced tract house (Fishman 1987, 193). The now century old American ideal of living in a detached single-family house with land thus became the heart of the housing business for developers for many years following World War II (Hayden 1984). The dream was made possible by “a massively financed and elaborately organized” housing industry (Fishman 1987, 194). Virtually all of these homes were constructed as part of a larger subdivision plan that included other similarly designed houses, landscaping, infrastructure improvements such as roads and utility lines, and in some cases also included amenities such as parks, schools, shopping and community centers.

Development

A striking feature of the postwar period was the frenetic growth that was channeled to the peripheries of cities, resulting in what some have called “the Age of Great Suburbs” (Fishman 1987, 182). Central cities stagnated as millions of jobs and people moved to the edges. Between 1950 and 1970 population growth in the suburbs was eight and a half times greater than that of their central cities, with 85 million new suburbanites compared to 10 million new central city residents (Fishman 1987).

Postwar suburbs came in a variety of sizes. The largest included hundreds of homes, but many were characterized by several plats with a few dozen units each, and there were even smaller in-fill plats with a couple dozen homes. Smaller

subdivisions were more common in the eastern United States because its longer period of settlement resulted in more fragmented land development patterns. The western United States, which was more recently settled tended to have larger subdivision tracts built on land converted from agricultural uses (Martin 2001).

Subdivision Design

FHA regulations had a great influence on subdivision design and costs. Through the agency's voluntary review process, the FHA had a noticeable impact on the street layouts, lot sizes, and site plans of postwar subdivisions. For example, FHA standards favored curvilinear streets and cul-de-sacs that slowed traffic and minimized entries to the neighborhood, factors which created a safer play environment. Winding streets were also thought to improve property values by lending a country feel to the neighborhood. Moreover the FHA required paved blacktop roads which were more expensive than tar-and-gravel and some felt created "a hard city-like character" that held heat in the summer and created ice hazards in winter (Martin 2001, 117; Rowe 1991). Until the mid fifties, sidewalks were not mandated.

In addition, the FHA impacted lot sizes by requiring a minimum square footage per single-family parcel. Lot sizes increased throughout the postwar era, starting at an average of 7,500 square feet in 1950 and growing to almost 13,000 square feet by 1969. Houses in the postwar subdivision moved toward the front of their lots, often with a standard setback of 20 to 25 feet from the property boundary and a minimum lot width of 50 feet. This left more room in the side yards and backyard for outdoor living spaces such as terraces, patios, and barbeque areas. As part of the site plan, FHA also required two trees for each front yard and later even increased the appraisal value of subdivisions that preserved existing trees during development (Martin 2001; Rowe 1991; Simulchrast and Frankel 1970; Stewart 1979).

Technology & Construction Methods

One of the defining features of the postwar American subdivision was the mass produced housing made possible by changes in the production process. Methods of mass construction had just successfully been applied to the production of war housing where the equivalent of many years of trial and error development were compressed into a few years. The result had been thousands of housing units cranked out by a few large developers. Following the war, builders began utilizing these methods to mass produce housing in residential subdivision developments (Doan 1997).

Improvements were made with tools and machines, there was more work done off site, shop and site fabrication methods were extensively used for prefabrication and panelized systems, the scale of the developer's operation increased, and new materials were used -- all of which facilitated the large-scale development of postwar suburbs. For example, one improvement included a reduction in lumber usage with the development of lighter roof trusses and utility

and plumbing installations that were simplified and standardized (Doan 1997; Grebler 1950; Rowe 1991).

Standardization within building processes themselves occurred as more components were preassembled off site and patterns and jigs were introduced at the job site. Power tools and new fastening equipment gained wider use. Tract builders and architects were increasingly employing a system of modular measurement based on four feet. Walls were framed sixteen inches on center; ceiling heights were eight feet. Gypsum board panels were manufactured at a standard size of four feet by eight feet, designed to attach directly to wall studs with fewer cuts required in between and none to fit the length from floor to ceiling. Window and door sizes were standardized and these units were preframed off site. Roof truss units were also manufactured elsewhere to minimize labor costs at the job site. Entire systems such as kitchen cabinets and plumbing were also preassembled off site and transported as one unit to the job site for installation. This allowed crews at the job site to operate like a production line. By 1969, less than ten percent of a single-family home's major parts were fabricated on site (Coleman 1944; Grebler 1950; Simulchra and Frankel 1970; Stewart 1979).

As the postwar era progressed, there was an increasing use of the engineering approach to conventional housing construction as "big business industrial methods" were applied more and more to housing production and management techniques (Simulchra and Frankel 1970, 53). Housing construction began to be organized largely around utilizing prefabrication in "production house" designs, which had more in common with industrial design than the traditional architectural practice used with custom houses. The production house required developers to become proficient in all sorts of organizational details. Mass production of housing required planning a lot for a little space and designing for standard dimensions, a smooth schedule of all construction tasks, attention to cost details coupled with efforts to minimize waste, knowledge of the features valued by FHA, VA, and local lenders, and the ability to produce a house for the "composite customer" that appealed to a range of tastes (Martin 2001, 136). Above all, it was "better scheduling, purchasing work planning, supervision, estimating, cost control, and inventory control" that allowed the mass produced subdivisions to take shape (Simulchra and Frankel 1970, 53).

Builders

The National Association of Home Builders (NAHB) emerged as a potent trade association and lobbying organization for the homebuilding industry after the war (Doan 1997). The Association helped facilitate the enormous success postwar builders of all sized operations generally enjoyed. In regular surveys of their membership, the NAHB defined a small-volume builder as one who built 25 or fewer units per year while a medium sized builder constructed up to 100 new single-family homes annually. Large volume builders constructed more than 100 units per year (Sumichra & Frankel 1970).

A particularly distinctive feature of the postwar period was the increase in the number, importance, and size of large builders. The new streamlined financing and production systems allowed these large-scale builders to garner an increasingly bigger share of the housing market in the postwar boom years although the local nature of the housing industry still tended to favor small and medium builders. By 1949, a few large developers (estimated at ten percent) accounted for approximately 70 percent of new housing units nationwide. In spite of these impressive numbers, small and medium sized builders were considered the backbone of the postwar homebuilding industry as they more adaptable to the local nature of the housing industry. In 1949, 720 of the small and medium firms built almost one quarter of all housing. This was particularly true in suburban areas that lacked major industry or other blue-collar employment magnets (Jackson 1985; Martin 2001; Weiss 1987).

As the postwar period progressed, the large volume builders' share of the single-family housing sector decreased and the proportion of new homes built by small and medium sized builders grew. The large volume builders' share of the total single-family units built fell substantially between 1959 and 1969, going from 63 percent to 43 percent. The proportion of builders who constructed more than 100 single-family homes per year also declined, dropping from 13 percent in 1959 to 6 percent by the end of the sixties. By that time, most of the single-family home builders (70 percent) were small-scale operators, constructing fewer than 25 new homes a year. These builders accounted for 22 percent of all production -- up from ten years earlier when they built about eleven percent of the new houses (Simulchrast and Frankel 1970, 99).

The residential real estate sector had traditionally been fragmented, but with assistance from government agencies to stabilize financing and provide land use regulations, operative builders were able to exert a higher degree of administrative coordination in the housing market. Builders also significantly increased the scale of operations and transformed the structure of operations integrating to a great extent previously separate and uncoordinated activities within the housing production process (Weiss 1987).

"The market for housing in the United States is discretionary, cyclic, and local" (Sumichrast And Frankel 1970, 13). Therefore the postwar builder's organization reflected the special characteristics of the residential construction industry and local market influences. Single-family builders tended to prefer a sole proprietorship or partnership form of organization because these are the simplest and least costly. The medium or large-scale developer was more likely to organize under some type of corporate structure. This form of organization helped him to maximize profits, limit liabilities, provide financial and management flexibility, and delegate responsibilities (Sumichrast And Frankel 1970).

Small and medium sized builders were typically merchants and/or custom builders in the single-family housing business. Large volume builders tended to stay away from custom construction, increase the percentage of business devoted to

multi-family as well as commercial and industrial development, and were more involved in engaging in land development than the small builder (Sumichrast & Frankel 1970).

Homes constructed by custom builders or designed by an architect were typically characterized by heterogeneity of design. In contrast, merchant builders of tract homes tended to rely more on gadgetry to give distinction to their houses (Grebler 1950).

Builder-Architect Relationship

The new organizational production process applied to postwar housing development minimized participation by architects. By the mid fifties, there were only a handful of mass produced tracts in the nation that involved much collaboration between builders and architects though later *House & Home* articles suggest the trend toward collaboration was growing stronger by the end of the decade. The tremendous cost pressures in tract housing development meant that most collaborative ventures with speculative builders involved young architects who could afford to take the lower paid jobs in builder housing (Martin 2001).

Progressive tract projects or those offering a contemporary house style as one choice were usually the result of builder-architect collaborations. In the postwar period, the booming areas of California accounted for the most of the builder-architect tract housing production in the country and Eichler Homes, operating in nearly thirty California cities, became the largest volume builder of tract modern houses. The architect was used less in the design of tract homes primarily because of the builder's concern about costs, which became especially critical amidst steadily rising prices for materials, labor, and land throughout the postwar era (Martin 2001).

In addition, the FHA encouraged builders to set their design fees based on plan book designs, which were typically cheaper than architect's fees. There were also mail order plan services available for the builder (Martin 2001). Use of standard plans helped builders obtain cost advantages "from repetitive building operations and bulk purchases of identical materials" (Grebler 1950, 14).

However, by the late fifties nearly half of all builders hired some kind of design professional, including an architect or designer while the remaining ones relied on in-house designs or a plan service. This extra attention to details became apparent in the greater variety in housing constructed during this period (Martin 2001). Also, a growing feeling that "where standardization is fully exposed, monotony offends the aesthetic sense of users and the community at large" led to a preference for "standardization disguised by variation in exterior design" even though costs were increased as a result (Grebler 1950, 14).

By the late sixties only a quarter of all builders still used outside architectural firms to obtain their working drawings. Almost half used stock plans or their own in-

house draftsman while three percent had a staff architect (Simulchrast and Frankel 1970).

Marketing

Builders relied on a variety of tactics to sell houses in particular subdivisions. One popular method of marketing involved local newspaper exposure through articles and ads about new subdivisions. Many also staged big opening day parties and offered open house tours of their models (Martin 2001).



Figure 5 Open House at Campus Homes Subdivision
Source: Del Webb Development Co. 1958

As the postwar period wound down, builders constructed fewer model homes to aid in selling homes and relied less and less on their own sales force to make the pitch. They were also less inclined to furnish their models as they increasingly sought ways to cut expenses in the face of rising land and financing costs. This was particularly true of small volume builders who constructed fewer than 25 single-family homes a year. Most large volume builders continued to use model homes and employ their own sales force for marketing (Simulchrast and Frankel 1970).

Subdivision Financing

FHA and VA construction loans were extremely influential in stimulating postwar subdivision development, though they never actually comprised a majority share of the market. In the early postwar years, not quite one third of all housing units were started under government inspection with FHA or VA loans (Doan 1997). By the late sixties, nearly two thirds of all builders financed over half of their single-family subdivision construction activity with conventional loan commitments. By that time, FHA construction loans were used by twenty-two percent of all builders while VA loans were taken out by just twelve percent (Simulchrast and Frankel 1970). VA mortgage insurance sometimes offered more favorable initial financing terms to developers who might be penalized by FHA's valuation of "dubious" house designs (Martin 2001).

The federal government cultivated a strong system of savings and loan associations by insuring the savings of small investors who made deposits in these institutions. Government policy then dictated that these deposits be channeled directly into short-term loans for builders or long-term loans for buyers. This made it possible for postwar developer-builders to borrow large sums of money for

subdivision development, which facilitated never-before-seen economies of scale in the residential construction process. This increase in ability to borrow allowed for the emergence of large-scale developers the most famous of whom was William Levitt, who built several Levittown communities in the late forties and fifties with thousands and thousands of homes in addition to other community amenities such as schools and recreation areas (Rowe 1991). The new efficiencies in financing and construction also helped a vast number of medium and small scale builders participate in the postwar housing construction boom (Fishman 1987).

There were several different institutions offering construction loans for single-family subdivisions but the market was dominated by the savings and loan associations and commercial banks. By the late fifties, 38 percent of all builders used savings and loan associations for their permanent financing. By the mid sixties this increased to 43 percent and then jumped to 54 percent by the end of the decade. At the same time, commercial banks became more important as a source of construction financing because they made lines of credit easily available to builders. This was more convenient than going through the time-consuming process of securing a conventional construction loan and by the end of the sixties almost half of all builders used commercial banks for their subdivision construction financing (Simulchrast and Frankel 1970, 59, 167).

POSTWAR HOMES

Design

Postwar housing designs were affected by a variety of influences. These factors included the automobile, demographic trends, the mortgage market, local demand, building codes and zoning, and changing consumer values and popular taste (Stewart 1979; Martin 2001).

Modern designs largely defined postwar housing styles and the main lessons of twentieth century modernism were reflected in them: forms and structures were one, with a low profile emphasizing horizontal lines; inside and outside merged through use of floor-to-ceiling glass and sliding glass doors; and interior space was open within public areas of the home with a private zone for the bedrooms (Fishman 1987; Martin 2001).

The most popular of these styles was without question the ranch, but the period also saw construction of cape cods, contemporary and tri-level housing styles (Martin 2001; McAlester 1984; Rowe 1991). In the late sixties and seventies there was a shift away from modern styles toward more neoelectic designs using traditional shapes and detailing, frequently based on Spanish and Mission style precedents (McAlester 1984).

In the immediate period following the War mortgage ceilings were low, promoting housing that cost less than \$10,000. It was a seller's market and builders were focused more on financial terms than the saleable features of the new houses

they were building. The homes were therefore “small, modestly priced, quickly built units constructed on tracts easily serviced by utilities” (Martin 2001, 79). These early postwar housing designs were geared toward the “normative American family – a white, middle-class family with mother, father, and not more than two children” (Stewart 1979, 485).

As a consequence, architectural styles were frequently plain and repetitive. “Choice for consumers was a superficial stylistic one of eclectic facades on [nearly] identical houses” (Hayden 1984, 105). In the name of economy, the “look-alike” homes, repeated “row after row... each with a picture window in the living room, lined suburban streets, which were the playgrounds for the numerous small children of the young families, which made up the suburban population” (Stewart 1979, 475).

Plan

The automobile influenced changes in the plan of the typical postwar single-family detached home. The front porch, which had been a social center in eras when neighbors strolled past, began to shrink as people began to drive past instead. The major entrance to the home moved from the street side to a door nearest the carport or garage, which was under the same roof as the house. To escape from road noise and take advantage of outdoor living areas in the backyard, the living room moved to the rear of the house and patios were added to help merge the two living spaces (Stewart 1979).

An emphasis on informality guided the plan of the typical postwar home. The “family room” became a general-purpose space for family interaction. Plans in the fifties and later were also characterized by a flowing arrangement of rooms, which enhanced their informality and functionality by using spatial divisions instead of stationary or permanent walls (Stewart 1979).

In the early postwar years typical house designs were simple. The house of the late forties was small, had only one story, and lacked a basement, attic, or separate dining room; it was likely to have a kitchen, a dining room alcove off the living room, two bedrooms, and one bathroom (Stewart 1979, 473). Twenty years later, the typical single-family home was still more likely to be one story with a slab foundation, though one third of homes became two story or split level and often included a basement. The home of the late sixties had an average of three bedrooms and two full bathrooms and most had a garage for one, or more likely, two cars. Mechanical systems and appliances were an important part of the home by this time with air conditioning, ranges, and dishwashers coming standard with most new single-family homes (Simichrast and Frankel 1970, 21).

Size

In response to increasing postwar prosperity and satisfaction of the early pent-up demand, housing sizes began to increase in the fifties (Stewart 1979). The dream house kept growing in the postwar years until “Americans enjoyed the largest amount of private housing space per person ever created in the history of urban

civilization” (Hayden 1984, 38). Houses of the late forties were much smaller than those that preceded or superceded them because excessive pent-up demand dictated that production emphasis be on quantity of housing. However, the size of houses doubled between 1950 and 1975 as rooms became bigger and more of them were included in the average house. Homes went from 800 square feet with one and a half baths in the early fifties to 1400 square feet and one and three quarters baths by the mid sixties and grew to 1600 square feet with two and a half baths a decade later (Hayden 1984, 174; Simulchrast and Frankel 1970, 21; Stewart 1979).

In 1945 about 42 percent of homes had four or fewer rooms, another 42 percent had five or six rooms, and only 16 percent had seven or more. By 1973 just one third of homes had four or fewer rooms, while 46 percent had five or six, and 21 percent had seven or more (Statistical Abstract of the United States 1947 & 1974). Meanwhile, average household sizes decreased from 3.37 persons in 1950 to 2.75 persons in 1980. In terms of space per person, over 90 percent of households had one person or less per room by 1970 (Hayden 1984, 38).

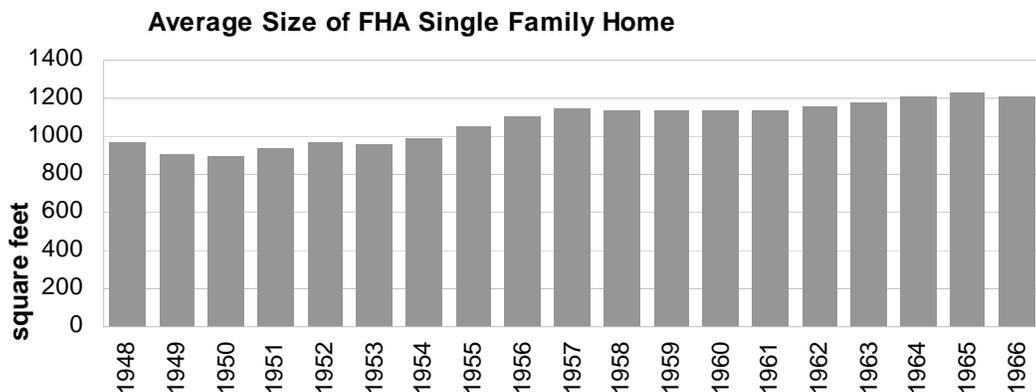


Figure 6 Average FHA Home Size, 1948-1966
Source: National Commission on Urban Problems 1969

Between 1963 and 1969 the median square floor area of a single-family house increased almost three percent each year going from 1,365 square feet in 1963 to 1,585 by 1969. FHA houses increased at almost the same rate as their average size went from 1,182 square feet to 1,219 over this same period (Simuchrast and Frankel 1970, 19).

Housing sizes were also influenced by “health” recommendations issued in 1950 by the American Public Health Association (APHA) which actually calculated the space required to perform typical household activities. With a focus on the home as an instrument of health, the Association’s major concern was the total living space required by different sized families, a concern which came about in response to the economy houses built in the early postwar boom. As a result, the APHA

recommended that houses have 750 square feet for two people, 1,000 square feet for three persons, and up to 1,550 for a six-person household, almost double the areas of the minimum standards for FHA houses at the time (Stewart 1979).

Materials

In the postwar period cheaper building materials were substituted for expensive materials to keep the homes economical. So instead of the more costly wood, brick, stone, or ceramic tile, less expensive materials such as plywood, concrete, or cinder block, and asphalt tile were commonly used (Stewart 1979). Material usage was largely influenced by local availability and cost. During the fifties new technology and its products, such as plastics and exposed metal finishes were met with a fairly enthusiastic reception, but later preferences changed back to more authentic and traditional looking building materials (Rowe 1991).

Styles

Initially, the most popular design was the cape cod produced mainly in the East, but the ranch, which first appeared in California during the thirties, soon became the favored style nationwide. Early tract ranches were mostly simple, rectangular forms with little extra detailing or variation among houses within a subdivision. Sunset Magazine and architect Cliff May popularized the more upscale California ranch that appeared throughout the postwar years, which used variation in the type and treatment of materials on the facade (Martin 2001; May 1958).

FHA design guidelines proved to be powerful shapers of the postwar neighborhood and the architectural styles of its individual homes. By only lending developers money and insuring mortgages only on subdivisions and housing that conformed to their relatively conservative design standards, the FHA almost single handedly dictated housing appearance. Builders who hired a sophisticated architect could actually be penalized for failing to conform to FHA design norms and progressive features such as flat roofs were particularly suspect at the FHA and with speculative builders who found them difficult for the general public to accept (Hayden 1984; Martin 2001).

Builders also introduced more progressive, contemporary styles as well as split-levels. In addition, prefabricated homes were sold in many areas nationwide, but were primarily erected in the Midwest. These changes resulted in more variety among housing in different subdivisions beginning in the mid-fifties (Stewart 1979; Martin 2001). Indeed, recent scholarship suggests, "a revised analysis of the postwar landscape reveals a substantial degree of differentiation and complexity" in the postwar styles (Martin 2001, 4).

Ranch House

The popular Ranch Style gained momentum in the postwar era as the volume builders who constructed them were copied nationwide by local builders with modifications based on regional preferences and locally available building materials (Martin 2001). The mass-market ranch often had a simple, rectangular form but

upscale builder ranches and custom-designs were typically characterized by projecting wings or a more rambling footprint as well as more exterior façade detailing. There was an evolutionary pattern of development in the ranch house type. It evolved from a modest basic home into a “sprawling, highly articulated ranch Rambler” (Martin 2001; Rowe 1991, 73).

Tremendous initial demand for housing was satisfied by the early fifties. To remain competitive, builders became more creative in order to sell homes. To appeal to potential buyers, they began varying house type, styles, materials, and features (Martin 2001, 84). They also began marketing the individuality of their homes, as well as the amenities and modern conveniences, particularly in the kitchen, to lure new buyers. Slight modifications to the form and detailing of the tract houses were made, usually enlarging the basic ranch form and giving it a new personality. Through “tack-on architecture” the house might convey storybook imagery of a western working ranch, a gingerbread house, or the character of a Swiss Chalet, English Tudor, American and even Dutch Colonial (House and Home October 1963).

In addition, the California ranch was a very popular choice. Characterized by its rambling, single story plan, and different materials across the front façade – most commonly board and batten over brick – this style was often larger than the simple ranch homes and was most closely associated with the romanticized Western lifestyle (May 1958; Rowe 1991).

Popular and trade literature of the day lauded the western aesthetic of the ranch house style. Western imagery was pervasively romanticized in film and literature in the postwar decades, and vacationing in the west became a popular pastime. The style of the modern ranch house in its suburban retreat was designed and marketed to evoke the romantic appeal and spirit of the open range, drawing on an imagery of the good life with barbeques, sunshine, and leisure galore (Hess 2000; Martin 2001). Of the popular ranch house, one writer commented “The American architectural tradition of making things seem what they are not has found a new expression... [with] Hopalong displacing the enchantment of Paul Revere, hero and silversmith” and further noting “the romantic dream of the prairie has [been] substituted for the nostalgic pleasure of exhuming the American past” (Martin 2001, 42 quoting Lynnes.)

Contemporary House

The contemporary style house was offered as a more progressive alternative to the basic ranch. It began appearing in the fifties in mainstream home and builders’ magazines and was built into the sixties. Contemporary styles were characterized by a low profile, flat or shallow-pitched gable roof, and extensive use of glass uniting inside and outside. Speculative builders sought input from registered architects and began including these designs among their tract model options and in some cases entire subdivisions were built with contemporary styles. In 1953 one California builder noted that “taste was changing” and young couples, who bought

most of the new houses, were beginning to favor the contemporary house style (Martin 2001, 50). Contemporary styles appealed to the tract builder because their progressive design had the potential to reduce costs by eliminating attics and cellars and architect's skills were used to design more built-in storage spaces and integrate mechanical systems and new technology such as heating and air conditioning with extensive ductwork (Martin 2001).

They were most likely to be built "in areas either already familiar with modern design or in areas where a progressive subdivision was a niche product that would provide instant differentiation" (Martin 2001, 139). Overall, however the contemporary style was the least favored in the popular marketplace (Rowe 1991). The idea was to provide something different and to attract outsiders who might already be familiar with the more contemporary designs favored in the west. By 1955, the higher mortgage limits and growing popularity of mainstream modernism began to inspire more tract housing builders to incorporate progressive elements in their homes (Martin 2001).

Tri-Level House

During the early and mid fifties a "national mania" for the split-level emerged as continuing prosperity facilitated an increase in average home sizes. These homes became the modern substitute for the two and three story homes found before the Depression. The most common arrangement for this style placed the main entrance on the middle level along with a kitchen, utility room and large dining room/living room. One half level up was the bedroom level, usually with three bedrooms and bathrooms and one half level lower was the family room with sliding glass doors to the outside and possibly another bedroom and bathroom (Martin 2001; Stewart 1979). The tri-level home became a niche product for growing families, providing more space and an arrangement that afforded more privacy and separation between teenager and adult activities, particularly in areas where television or stereos might be used (Ames 2000).

Preferences

Socioeconomic conditions and family values are all thought to influence housing preferences (Martin 2001; Stewart 1979). In the postwar era, marketing specialists in the housing industry paid special attention to the relationship between social factors and housing style preferences. They noted an inclination for "emotionally secure intellectuals" who wanted to differentiate themselves from the mainstream, status seeking classes to own the architect-inspired contemporary housing designs of the era (Martin 2001, 25). On the other hand, the wealthier, upper classes tended to favor the more conservative "period revival housing styles that symbolized wealth, sophistication, and a long family background" (Ibid, 26). Marketing specialists further noted that the middle and lower classes aspired to acceptance in this higher class. They therefore favored "affordable versions" of more mainstream Early American and other period revival styles. General development patterns after the War also revealed that mass taste showed a preference for

traditionally inspired house forms and styles of modern design and these were overwhelmingly ranch homes (Martin 2001).

Consumer preferences were also tied to family values, which influenced housing choice and designs in the postwar era. A 1955 study examining the relationship between family values and housing design identified four basic groups of values. These were economy, family-centered, personal and prestige. Those families who valued economy were considered “the most conservative and conventional and placed the highest value on price and durability” when selecting a home. Family-centered households wanted the design to provide for interactions among family members to enhance the family’s well being. Those families who stressed personal values emphasized personal enjoyment and privacy for individual members. Finally, the families who valued prestige regarded their house as a symbol of success and therefore emphasized impressiveness over convenience or efficiency (Stewart 1979, 478).

Builders also more directly monitored market demand when deciding what features to offer in their tract housing. A conference of 100 housewives invited to the Washington Housing and Home Finance Agency in the fifties reported wanting houses with “three bedrooms, 1½ or preferably two bathrooms, a full dining room, separate utility/laundry next to the kitchen, more storage space, and preservation of shade trees” (Martin 2001, 102).

Alterations

Postwar house designs allowed for the anticipation of alterations. In fact, the famous California ranch home designer, Cliff May commented, “one of the major qualities of good ranch house design ... is adaptability to changing conditions” (May 1958, 27).

New homeowners in the postwar era were part of a “national, do-it-yourself home and garden improvements” movement that began in the early fifties (Martin 2001, 213). Home additions were a popular expression of this trend as they were an easy way for postwar families to accommodate growing spatial needs. In fact, enclosing the carport was one of the most common patterns of early house additions, taking advantage of an original design feature that was often planned as an area for potential expansion (Martin 2001, 213).

Financing

FHA and VA policies promoted home ownership in suburban areas by offering to insure mortgages on new tract houses with little or nothing down and low monthly payments over a 20 to 30 year period. Private lenders soon matched these terms with their conventional mortgages (Fishman 1987, 194). By 1969 most single-family home mortgages were secured by conventional loans, though FHA and VA still insured nearly one third (Simulchraast and Frankel 1970, 61).

Single Family Home Financing 1969

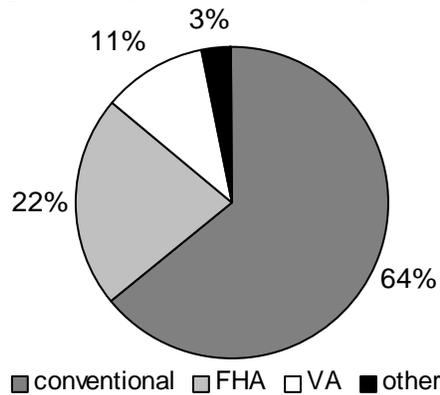


Figure 7 Nationwide Single Family Home Financing
Source: Adapted from Simulchrast and Frankel 1970

Changes in lending policies throughout the era were reflected in postwar housing patterns. In the immediate postwar period between 1946 and 1950 conservatism pervaded FHA and VA design guidelines resulting in mostly conventional housing styles such as the Cape Cod, California Ranch, and Simple Ranch. By 1954, however, a growing popular acceptance of more modernist-inspired housing designs and increasing family sizes influenced changes in FHA lending policies. As a result, contemporary homes reflecting a collaboration between builders and architects began appearing in some tract subdivisions. In addition, housing sizes increased. This was facilitated by the 1954 amendments, which lowered the down payment on houses selling for less than \$25,000, therefore increasing the mortgageable amount. These changes directly influenced a spike in single-family housing production in 1955 and the trend later in the fifties and sixties toward larger houses and greater acceptance of modernist-inspired tract housing designs. More amendments to FHA policy in 1955 allowed tree preservation to count toward an increased loan appraisal value and developers used tree saving programs as a marketing tool by advertising new housing with "sensible landscaping" (Martin 2001).

Costs

Postwar home prices were largely dependent upon the cost of land, materials, labor, and financing. Land costs climbed steadily throughout the postwar period, increasing about ten percent a year in the fifties and then rising to an annual average increase of fifteen percent in the sixties as developable land became more scarce. The price per square foot of a finished lot more than doubled, going from twenty cents in 1950 to 48 cents by 1969. Average lot sizes also increased throughout the period, causing finished lot prices to increase at an even faster rate. The average lot was about 7,500 square feet and just under \$1,500 in 1950. As lot sizes increased 70 percent over the next twenty years, prices rose more than 300 percent. Therefore, by 1969 the average single-family lot was over a quarter of an acre and cost almost \$6,200 (Simulchrast and Frankel 1970, 22).

With the FHA's focus on economy and affordability, the price of the average FHA lot was somewhat lower. In 1950 it was just over \$1,000, about two thirds the price of the national finished lot average for all single-family homes. By 1969, however, it too increased over 300 percent to more than \$4,200 per lot (Simulchrast and Frankel 1970, 22).

Single-family home sales prices also increased throughout the postwar period. The median sales price rose almost nine percent a year between 1959 and 1969 and demand shifted to higher priced single-family homes. Cost increases related mainly to higher land and financing costs as well as larger single-family homes and lots (Simuchrast and Frankel 1970, 19, 97). Zoning and subdivision regulations also contributed to rising development costs in the postwar era.

In the early sixties, the lower-priced homes that sold for less than \$20,000 made up almost two thirds of the single-family housing market while more expensive homes priced over \$35,000 comprised only four percent. However, by the end of the decade just over a quarter of all single-family homes were in the lower-priced range (and were concentrated in the South) whereas one in five were selling for more than \$35,000.

Single Family Home Cost Changes

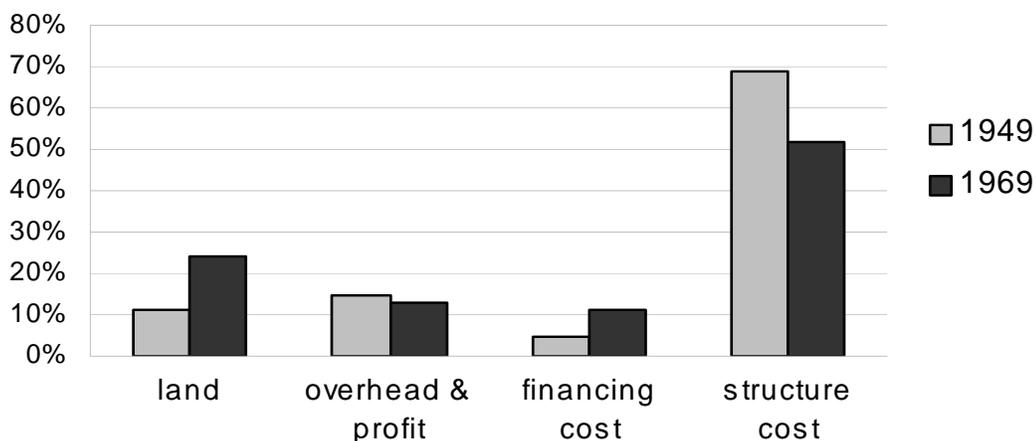


Figure 8 Nationwide Single Family Home Cost Changes
Source: Adapted from Simulchrast and Frankel 1970, 58

OTHER PROPERTY TYPES

Home construction expenditures set off a chain reaction of spending on other property types. After the housing came a need for more schools, community facilities, and service industries that required new buildings. By the late sixties, it was estimated that each new single-family home triggered an additional \$4,000 in construction related expenditures for better roads, more churches, new or bigger schools, and community facilities (Sumichrast And Frankel 1970).

One of the distinguishing features of postwar suburbanization, as compared to earlier periods of suburban development in America, was the creation of a new kind of city or “technoburb” (Fishman 1987, 183). While earlier suburbs existed primarily as residential getaways from the main urban core, they were still always functionally dependent on the specialized services, industry, and office jobs located in the central city. Postwar suburbs, on the other hand, actually developed as new cities with their own services, jobs, and industries and little need for the economic and technical offerings of the urban centers. Unlike earlier suburbs, the technoburbs renewed the link between work and residence (Fishman 1987).

With the rise of the postwar technoburbs, distinctly suburban property types appeared. These included shopping malls, industrial parks, campuslike office complexes, hospitals, and schools, as well as a full range of housing types – all linked together along highway and arterial road corridors (Fishman 1987, 184).

THE END OF AN ERA

Socioeconomic Changes

By the early seventies, the traditional American family was changing and this caused a decline in the demand for modern tract housing. Then, only a small percentage of families included a male breadwinner, a nonemployed housewife, and two or more children under eighteen. “The valiant WWII veterans and their blushing brides [had] retired and their children [had] grown up” (Hayden 1984, 40). The predominant family type became a two earner household. The fastest growing family type was the single-parent family, and nine out of ten single parents were women. Almost a quarter of all households consisted of one person living alone, including young singles and the elderly. A demographic shift occurred where younger and older families became the fastest growing population segments (Hayden 1984).

The inflated cost of the single-family home was just not affordable for these new households. By the seventies, the single-family detached home had become increasingly unaffordable as inflation caused housing prices to soar. The inflation problem was exacerbated by an increased demand for housing as thirty million postwar baby boomers came of home buying age and a rising percentage of household income was spent on housing (Hayden 1984).

Also by the seventies, there was a shortage of suburban land for development as outward expansion reached its limits. Land values in both suburban and urban locations skyrocketed, exacerbating the affordability crisis for the single-family detached home (Fishman 1987).

Further compounding matters, after 1972 a major recession hit the national economy, slowing down housing construction. Unemployment was also high, which dramatically impacted the demand for housing, and it fell by almost half between 1972 and 1974 (Sullivan 1979, 385).

Energy Problems

Builders had assumed energy would always be cheaper than materials or labor and had therefore largely ignored the issue of energy consumption in their modern home design details. But by the mid-seventies, “dream houses got out of control economically, and environmentally” (Hayden 1984, pp 42-43). Environmentalists were criticizing the housing design and dispersed settlement patterns of postwar neighborhoods that relied heavily on the car and used more nonrenewable energy sources than any society had ever consumed before (Hayden 1984; Fishman 1987).

Energy consumption had steadily intensified as suburbs grew and additional land and infrastructure were required for the increasing numbers of detached single-family houses. Water, gas, and power lines continually expanded, as did the number of roads. By the mid-seventies Americans owned 41 percent of the world’s passenger cars and the average one-way trip to work was nine miles. In fact, by this time Americans had more cars per household than children (Hayden 1984).

Also, traditional regional responses to climate, such as use of adobe in the Southwest or saltbox houses in New England, had been abandoned in the building fervor of the fifties in favor of using standardized plans and materials regardless of location. Huge picture windows created heat gain in warmer climates requiring increased air-conditioning usage. This same design feature caused the opposite problem in colder climates by allowing heat loss and necessitating the need for intensive heating (Hayden 1984).

The siting of postwar homes also increased energy costs. The grid street patterns and builders’ propensity to site houses square on their lots often dictated that housing be oriented either due north, south, east or west. The orientation problem is found even in subdivisions with curvilinear streets because larger arterial street grid patterns control the internal street arrangement. In addition, before beginning housing construction, builders often leveled all of a site’s natural features, such as hills and trees, that might otherwise have provided shade from the blazing sun (Hayden 1984).

In response to many of these energy-related issues, a no growth movement emerged in the seventies and began to affect the provision of housing by stimulating legal controls over both use of land and population growth limits. In addition, following the oil embargo the energy of 1973 caused Americans to face the realities of resource scarcity with implications that affected “the design, location, and basic approach to housing” (Sullivan 1979, 383).

As a result of the socioeconomic changes and the energy problems of the times, adaptations to the housing patterns occurred. Multi-family options such as apartments and condominiums became the hot new trend. There was a greater cultural acceptance of the apartment, which accounted for half of all new housing units built in the seventies. In addition, the condominium was increasingly attractive

as an alternative to the single-family home. It not only had the financing and taxation benefits of a single-family home, but also the advantage of shared maintenance expenses and activities (Hayden 1984; Sullivan 1979). By the early sixties, the number of new multi-family units built per year consistently outnumbered single-family homes (Fishman 1987; Martin 2001).

LOCAL POSTWAR TRENDS AND PATTERNS

THE PHOENIX METROPOLITAN AREA

The postwar period was an era of rapid change for Arizona and especially for the Phoenix metropolitan area. A number of demographic and economic conditions influenced a high volume of housing production. The area became nationally known for its single-family housing, which grew to become an important local industry in the postwar period.

Social and Economic Trends

The state had one of the highest in-migration rates in the country with people arriving by the thousands. Between 1940 and 1950 Arizona's population increased by almost 25,000 a year; over the next twenty years the average annual increase doubled to around 50,000 new residents each year. Most of these people moved to either the Phoenix or Tucson areas. Phoenix's metropolitan area population more than doubled in the first ten years after the war (Valley National Bank 1956; Maricopa County Planning Department 1964; U.S. Census Bureau 1972). A positive employment picture as well as Arizona's mild climate and low living costs were all factors that attracted new residents. The new population created a strong demand for new housing. By the early sixties single-family homebuilding had become one of the state's largest businesses (Fuller 1962, 279).

Manufacturing emerged as another important industry in the postwar era. Soon after World War II began, a number of aviation and military training camps opened in the state, attracted by the sunny skies, which afforded excellent training opportunities. This inspired other war-industries to locate in Arizona as well. Several large manufacturers who were looking to decentralize with multiplant operations built industrial centers in the Phoenix metropolitan region during the war (Zarbin 1962).

These events proved instrumental in postwar development as thousands of the servicemen and civilian workers who were first introduced to Arizona during the war returned with their families. This marked the beginning of the state's postwar population explosion. It also provided a labor pool of skilled workers, which was attractive to the postwar manufacturing operations that were emerging nationwide.

Manufacturing grew to become the state's "biggest income producer and fourth largest employer" by the early sixties (Zarbin 1962). The developing cold war had encouraged a focus on technology, particularly electronics. Manufacturers of defense equipment were urged by the federal government to locate in the Southwest and West where many of the wartime industries had been established. Phoenix was attractive because it was close to West Coast supply sources and was an air transportation hub (Fudala 2001; Zarbin 1962).

The arrival of Motorola in 1949 was credited for giving "impetus to the state's

single most important industry, electronics" (Zarbin 1962, 408). As a result of the government's encouragement and Motorola's presence, a number of other major industrial manufacturing firms located in the Phoenix area. In addition to Motorola, by the mid sixties General Electric, Sperry-Rand, Dixon Electronics, and Kaiser Aircraft and Electronics had opened plants in the metropolitan area, each employing more than a thousand workers. Hundreds of smaller firms also sprang up and most were in Maricopa County (Real Estate Research Corporation 1964; Zarbin 1962).

During the sixties Arizona continued to experience a swell in population. At the same time however the age group distribution changed. As a result, there were major increases in the number of young adults under 30 and older adults over 55. The population between 30 and 40, which traditionally provided the strongest market for single-family homes, barely rose (U.S. Census Bureau 1973). A downward trend in average family size also occurred (Real Estate Research Corporation 1964). These demographic changes influenced the development of other housing types, including apartments and condominiums as well as entire planned communities. In a parallel to nationwide trends, the proportion of new housing that was comprised of freestanding single-family homes gradually declined and multi-family types became more prevalent.

Typical of postwar patterns nationwide, and particularly in the West, suburban development in the Phoenix metropolitan area broadcast the overwhelming influence of the automobile. However, unlike many postwar suburban areas, freeways were not a defining factor in the development of suburban communities around Phoenix.

By the mid thirties Phoenix became the hub of federal, state, and county highways for the metropolitan area. However, in contrast to the national level interest in interstates and freeways, the Phoenix metropolitan communities perceived little need for anything beyond a good system of arterial roads in the early postwar years (Johnson 1993). With its relatively low population, compared to major Midwest and east coast cities, the metro area was not experiencing the traffic congestion that prompted highway construction in some of the larger cities. A 1947 street map of the Greater Phoenix and surrounding area showed the road network to be concentrated in Phoenix between the Salt River to the south, Camelback Road to the north, and between 19th Avenue and 32nd Street from west to east (Map of Greater Phoenix 1947). Many roads were only graded and oiled. Even in 1950 the Phoenix Public Works Department spent most of its time sprinkling water on unpaved streets to keep dust down (Johnson 1993).

By the mid fifties, however, the metropolitan area was in the middle of a population explosion, and the road network expanded dramatically as development pressure extended out from the City of Phoenix toward outlying communities. Car ownership was up 152 percent and average daily trips had increased 49 percent, according to a 1957 City of Phoenix report (Johnson 1993). By 1958, subdivision development street patterns connected the space between Phoenix and Scottsdale (Greater Phoenix Street Map 1958).

Highway development moved much more slowly due to lack of funding and local political battles. Though the 1956 Interstate Highway Act provided federal funding for highway construction, by 1960 only seven miles of freeway had been completed in Phoenix (KAET 2002.) In 1962 the Phoenix City Council adopted a resolution for seventeen more miles of urban freeways to be jointly constructed by the state and federal governments, though no more construction occurred that decade (Johnson 1993; KAET 2002).

Housing Trends

The increase in employment and population in the Phoenix metropolitan area brought about a sharp increase in housing demand over a relatively short period of time. In 1940 Arizona had only 26,400 occupied housing units, but by 1960 the number had skyrocketed to nearly 367,000. Phoenix saw an increase of more than fourfold in the number of new housing units during the fifties alone while the value of all construction increased more than tenfold between 1946 and 1959, from \$8.2 million to over \$86 million (Statistical Abstract of the United States 1947 & 1961).

The state's builders "raced to erect [single-family] houses as fast as families moved to Arizona's booming areas" in the postwar years (Lynch 1962, 75). In turn, the lure of rows and rows of new, inexpensive homes drew thousands more to Phoenix, and "small towns called subdivisions" were created everywhere on the periphery as agricultural and desert lands around the city were swallowed up by residential development (Fifer Jr. 1962, 525; Real Estate Research Corporation 1964).

By the mid fifties at least 34 subdivision builders were operating in the Phoenix market, including large-scale developers such as John F. Long who built the Maryvale community in west Phoenix, and Del E. Webb Development Co. who built several residential subdivisions in the metropolitan area in the fifties before developing the Sun City retirement community in the sixties. Many were members of the Arizona chapter of the National Association of Homebuilders, which had emerged to become a strong proponent of the homebuilding industry in the postwar era. Typical of nationwide patterns, these large volume builders often constructed several hundred homes per tract. More limited operators also engaged in the construction of a couple dozen homes at a time. Many of these builders, both large and small, constructed subdivisions in Scottsdale. Among them were D.D. Castleberry Building Construction, Cavalier Homes, Del Webb, Farmer and Godfrey Construction, Ellis Suggs Construction, and Hallcraft Homes, Inc. (Reed 1954, 39).

Home Financing and Costs

By the mid fifties Phoenix was nationally known for its "outstanding new home values" which were among the most affordable in the country (Reed 1954, 25). This affordability was attributed to a number of factors. There was an abundance of available land for residential subdivision development -- estimated to be nearly half a million acres in 1954. In addition, the sunny climate was ideal for year-round building, and less than five working days annually were lost due to

inclement weather. Other important factors included the use of mass production building techniques. Indeed, teams of builders from other parts of the country were sent to Phoenix to study the “cost saving methods which produce these values” (Lynch 1962, 81). Arizona also had an ample supply of qualified construction workers. It was common for the volume builders in the Phoenix area to operate on a small net profit, sometimes as little as \$200 per house, which was “unheard of” in other parts of the country and helped keep costs down for buyers and competition up among builders. Financing for home mortgages came “willingly and readily” from eastern banks who viewed the Phoenix homebuilding market as a good investment and who relied on the “excellent reputation” of local lending institutions for servicing the loans (Reed 1954, 39).

In 1954, \$11,000 bought a new, three bedroom tract home in the Phoenix area; similar homes were reported to sell for \$18,000 back East (Reed 1954, 25). Phoenix homes continued to be a good value, still selling for about ten percent less than the national average at the end of the fifties. By the early sixties, the state’s biggest builders were selling homes anywhere from \$9,500 to \$16,000. A typical three bedroom two bath home in the Phoenix metropolitan area sold for about \$12,500 and a four bedroom model with two baths a family room and dining room sold for around \$16,000 (Fifer Jr. 1962; Lynch 1962). Many of Scottsdale’s tract homes were selling for similar prices while an upscale home in a “smart subdivision” started at \$37,500 (Lynch 1962, 81).

Throughout the fifties and sixties rising land costs in metropolitan Phoenix contributed to higher home prices. In 1947 subdividers in the Phoenix area were able to purchase raw land for about \$100 an acre. However, land prices increased as demand for single-family homes rose and easily developed agricultural parcels became less prevalent. In ten years one acre of raw land had climbed to \$2,500 and by the early sixties \$5,000 an acre was the lowest sales price recorded (Fuller 1962, 279).

Marketing

In the fifties most new tract homes in the Phoenix metropolitan area were sold on the basis of what furnished models displayed, and the sales contract was often signed before ground was even broken. This method gave the buyer an opportunity to choose special features to



Figure 9 Billboard Promoting Phoenix Area Hallcraft Homes
Source: Fudala n.d.

customize his new home such as exterior house features including trim patterns and roof shapes as well as interior color schemes, tiles, and even slight plan modifications (Reed 1954). By 1960, home trade-in plans were also being promoted in the Phoenix area as a way for builders to stimulate single-family housing demand (Realty and Research Inc. 1961).

“THE WEST’S MOST WESTERN TOWN”

Until the early fifties Scottsdale was a small, unincorporated town in the desert eight miles east of Phoenix -- Arizona’s biggest city. Initially settled in the late 1800s as an agricultural community, the town grew at a snail’s pace compared to elsewhere in the metropolitan area. By 1940, there were still fewer than 2,500 residents in the Scottsdale area, and only 740 within the original 40 acre town site (Fudala 2001). In contrast, Phoenix had over 65,000 residents by 1940 (U.S. Census Bureau).

The community’s population temporarily increased during World War II with the opening of Thunderbird Air Field in 1942. The aviation training facility graduated more than 5,500 cadets before closing two years later. Many of the students and their families later returned and settled in the area after the war (Thunderbird Field #2 n.d.)

Though Scottsdale’s principal industry was farming for its first 60 years, in the thirties the community also became increasingly well known as an arts colony and a winter resort destination. To capitalize on this, in the early postwar years the town consciously promoted a Western image to the tourism market. A western style design theme for downtown business buildings was officially adopted in the late forties and Scottsdale began billing itself as “The West’s Most Western Town” (Fudala 2001). Tourism played a role in the town’s subsequent postwar growth, and its “unique world-wide reputation as a fashionable sun-and-fun vacationland” influenced a “goodly number” of visitors to become permanent residents in the fifties and sixties (Valley National Bank 1967, 11-12).

Because early industries were primarily farming and western-lifestyle tourism, Scottsdale retained a rural identity and experienced almost none of the earlier forms of residential subdivision development characteristic of railroad, streetcar and prewar automobile suburbs. Demand for these forms of suburban development had occurred mainly in Phoenix, which saw construction of a few Victorian era neighborhoods around the turn of the century as well as Bungalow, period revival, and early ranch subdivisions before World War II (City of Phoenix 1992).

In contrast, residential development patterns before the postwar era in Scottsdale were characterized by its rural heritage. Homes were mainly scattered at the edge of agricultural plots and along a handful of rural residential streets adjacent to the downtown near Main Street and Scottsdale Roads. A small number to start,

fewer than 50 homes constructed prior to 1946 remain in Scottsdale today (Maricopa County Assessor 1999).

Shortly after the war concluded Scottsdale began to experience its first population and business boom. When the community incorporated as a town on June 25, 1951, it had a population of just over 2,000 living in one square mile. The area between Camelback and Thomas Roads, the Arizona Canal to the west, and Miller Road on the east defined the official town limits. This area included the downtown commercial district where an estimated 70 businesses operated (Fudala 2001; Myers 1988).

In addition, Motorola had built a laboratory near the town on Ingleside Road in 1950 after its first Phoenix area plant opened in 1949. In 1957, the company constructed a nearly 200,000 square foot transistor fabrication and research facility at Granite Reef and McDowell Roads, just outside the town limits. Another 200,000 square feet was added in 1961 and again in 1965. Motorola's presence was instrumental to Scottsdale's residential development, creating a strong demand for new housing. Dr. Dan Noble, the vice president and inventor of Motorola's famous wartime two-way radio, was influential in Motorola's decision to operate in Scottsdale. Already familiar with the state as a result of spending time here as a youth, Dr. Noble had also been a regular winter visitor to Scottsdale in the late forties, where he came to escape from the Chicago cold. In 1950 he relocated to Arizona and purchased a home in Scottsdale. Over the next twenty years he guided Motorola to its position as one of the largest semiconductor manufacturers in the country (Hernandez 1962; Historic Scottsdale n.d.; Scottsdale Progress 1950; Zarbin 1962).

By the mid fifties, resort, commercial, residential, and industrial growth began to alter the original character of the farming community and in the second half of the decade Scottsdale began developing as a major city within the metropolitan area. Though the car was extremely important to Scottsdale's postwar subdivision development, freeways and highways were not. None of the funded freeway alignments for the Phoenix metropolitan area connected to Scottsdale and a proposed route through the city was vigorously opposed by residents even as late as 1972 (Fudala 2001). Instead, four major arterials in Scottsdale functioned as thoroughfares to make for easy commuting to Phoenix and other area employment centers. McDowell Road was the major link to both Phoenix and Mesa, Thomas Road to Phoenix and the Salt River Indian Reservation, Indian School Road to Litchfield on the far west side, and Scottsdale Road served as the only major north-south arterial to link with Paradise Valley to the north and Tempe to the south. By 1960 Scottsdale's road system was deemed inadequate to serve the area's increasing traffic (Maricopa County Planning and Zoning Department 1960). Nonetheless highways remained absent from the city throughout the postwar era and arterial roadways continued to function as the sole thoroughfares (City of Scottsdale Map 1973).

Social and Economic Trends

The population in Scottsdale climbed sharply in the postwar era and grew particularly fast in the early sixties, increasing by an astonishing 576 percent through the decade. From the mid sixties until the early seventies Scottsdale ranked second behind Phoenix in population among the metropolitan area communities and was the third largest city in the State with 68,000 people. The population increases were a result of new residents moving to the City as well as a frenzy of annexations that added over 80 square miles by 1975 (Scottsdale Growth and Development Report 1985; U.S. Census Bureau 1972).

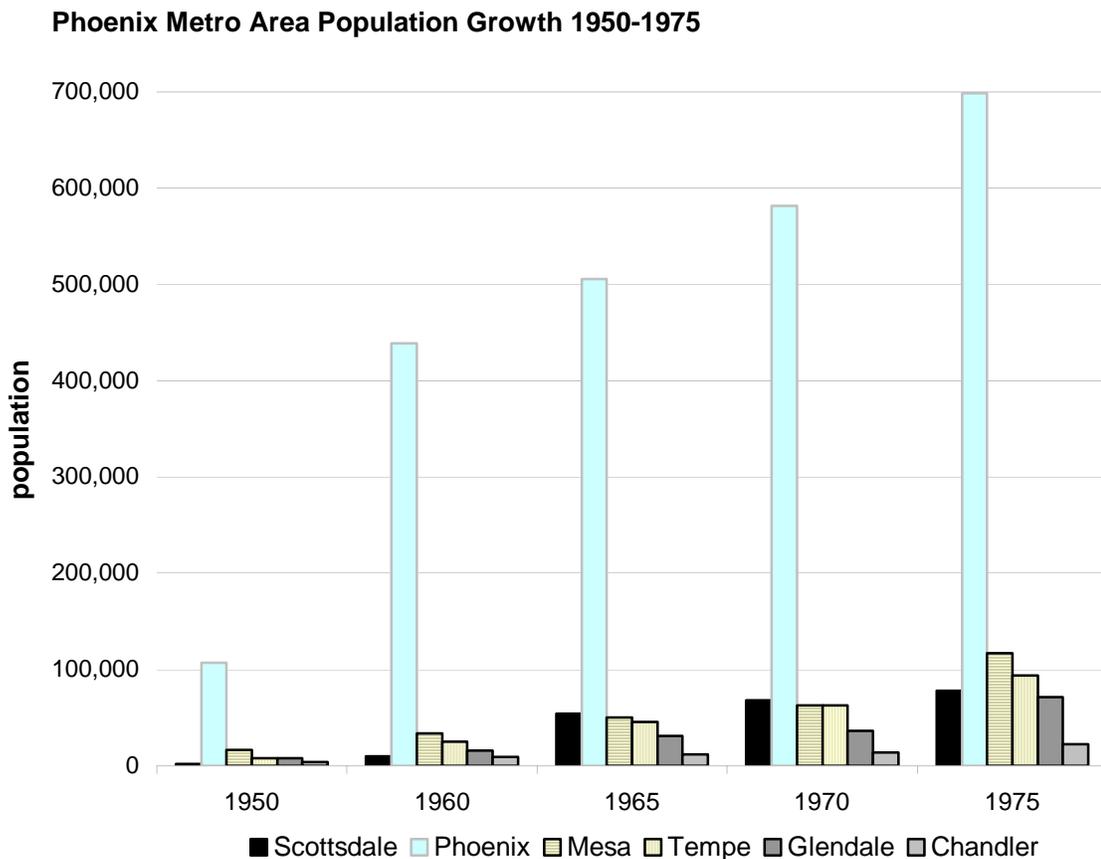


Figure 10
Sources: Adapted from U.S. Census Bureau 1950 & City of Scottsdale 1986

By 1960 Scottsdale's official population was about 10,000, though there were actually closer to 40,000 residents counting those who lived around the urban fringe (The Maricopa County Planning and Zoning Department 1960). Like many suburban communities across the country, demographic trends presented a family-oriented

picture. About three quarters of the population were married; over 40 percent of the residents were children under eighteen; fewer than five percent were seniors over 65. The percentage of the community's population under eighteen continued to grow slightly in the first half of the sixties while at the same time the population over 65 declined. This was somewhat of a departure from trends in the Phoenix metropolitan area, which had a slightly smaller proportion of children under eighteen but a more noticeable percentage of adults 65 or older (eight percent). Scottsdale's median age also declined to 25.6 years in 1965 from 27.7 years in 1960 (Real Estate Research Corporation 1966).

By 1970, these trends reversed in Scottsdale. The percentage of the population younger than eighteen fell below 40 percent while the proportion 65 and over rose to nine percent. There were more singles than ten years earlier and the proportion of married couples declined. In spite of these changes Scottsdale was still primarily a traditional family-oriented community, with 90 percent of all families comprised of both a husband and wife and over half of these with children (U.S. Census Bureau 1970).

Much like national postwar suburban trends, Scottsdale's population was overwhelmingly (almost 99 percent) white. While five percent were of Hispanic heritage, this was far below the 25 percent average in the Phoenix metropolitan area (U.S. Census Bureau 1972).

The postwar prosperity evident in much of the country was especially apparent in Scottsdale. Motorola's decision to open a laboratory on Ingleside Road in 1950 and large facility at McDowell and Hayden Roads in 1957 influenced a number of high-skilled workers to move to the Scottsdale area. By 1960 the town was the most affluent community in the state. It had the highest household income, level of education, and percentage of persons employed in white-collar occupations. It was nationally known for its resident industrialists, bankers, and manufacturing millionaires. The median income was 25 percent higher than that found in the rest of the Phoenix metro area. Almost two thirds of the workforce were white collar workers, compared to just under half of all workers in the metropolitan region. These trends held through the sixties during which Scottsdale's median family income rose 65 percent and it continued to exhibit social and economic characteristics that distinguished it as the state's most prosperous city (Real Estate Research Corporation 1966; Scottsdale Progress 1970; U.S. Census Bureau 1972).

Postwar Residential Subdivision Development

This study identified 236 residential plats with almost 15,000 single-family detached homes that were built in Scottsdale between 1946 and 1973. The subdivisions were platted between 1929 and 1972, and most were recorded at the Maricopa County Recorder's Office over a seven year period from 1955 to 1962. Though there were two small residential subdivisions platted in the late twenties (Arcadia Vista and Ingleside Inn Tract) the Depression and World War II interrupted their development. Single-family subdivision recordings again declined significantly

beginning in 1963 as land prices rose and condominiums and townhouses became more popular housing options.

The official area for the town of Scottsdale was still less than four square miles by 1960 and most new residential subdivisions were at the urban fringe on land that was still in Maricopa County (City of Scottsdale 1985). Therefore, the County Board of Supervisors approved the majority of subdivision plats recorded through this boom period. In the early sixties, however, Scottsdale began aggressively annexing land, incorporating 54 square miles in the first five years of the decade. Some of these parcels were already developed but the majority were not. As a result, from 1963 on the City of Scottsdale approved most new subdivisions, giving them more control over planning and zoning in emerging residential areas.

Residential subdivision regulations and zoning requirements differed in some respects between the County and Scottsdale, with the County typically having more relaxed standards. Therefore some physical development patterns in terms of lot size requirements and the presence or absence of sidewalks were affected by which entity originally approved the subdivision plat.

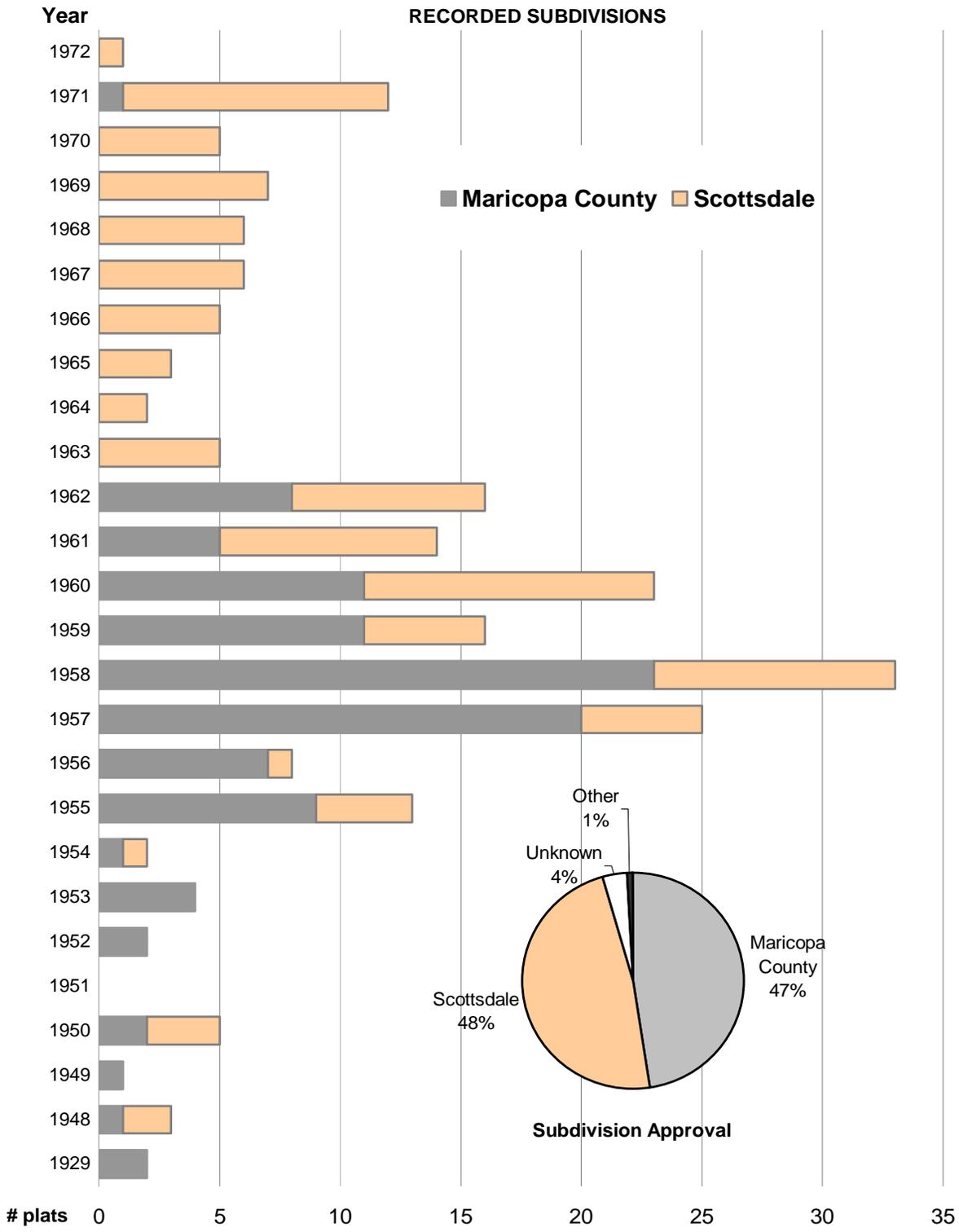


Figure 11
Source: Adapted from Maricopa County Recorder data

To learn more about the physical patterns that characterized Scottsdale's postwar subdivisions, the 236 residential subdivision plats were grouped into 103 subdivision developments. A subdivision development was comprised of plats that both had the same name and were contiguous because it was assumed that these were planned by one developer. Therefore, the data could be analyzed at the subdivision level to learn more about the physical characteristics that define specific developments. These aggregated subdivisions were the unit of analysis for all subdivision level characteristics studied. The 103 postwar subdivisions identified in Scottsdale are shown on the map on the next page.

As the map illustrates, the scale of postwar subdivision development in Scottsdale varied from small and medium sized developments with only one or two plats to much geographically larger developments comprised of as many as fourteen different plats. Most of the development (55 percent) happened at a smaller scale, with just one plat in the subdivision, though the sizes of these plats varied in terms of land area and number of houses. More than a quarter of all development occurred in subdivisions with two or three plats, which was indicative of a medium sized operation. Large-scale development was less prevalent, though certainly characteristic of a handful of Scottsdale's postwar subdivisions. Nine percent of the subdivision developments were built in four or five plats, with eight percent having six or more. The small size of some plats suggested there was infill development occurring, particularly in areas around the downtown original townsite. Beyond these locations, the developments became larger in terms of numbers of plats and land coverage, indicating that there were big agricultural and undeveloped parcels of land available at affordable rates for development.

The average subdivision had 137 houses, though there was a wide range from only a half dozen to well over a thousand homes. These patterns suggest that most of the builders were small to medium sized merchant builders, with a few large-scale developers -- a pattern that paralleled nationwide trends. These patterns also showed that the mass production of housing in suburban locations – so characteristic of postwar development nationwide – occurred in Scottsdale as well.

Construction Periods

Scottsdale’s postwar residential development was slow to start, compared to nationwide trends when construction got underway immediately after the war concluded in the mid 1940s. Most of the early postwar development in the Phoenix metropolitan area occurred around the City of Phoenix and some of the other outlying communities such as Tempe, Mesa and Glendale. In contrast, physical

Scottsdale - Construction Periods for Single Family Homes

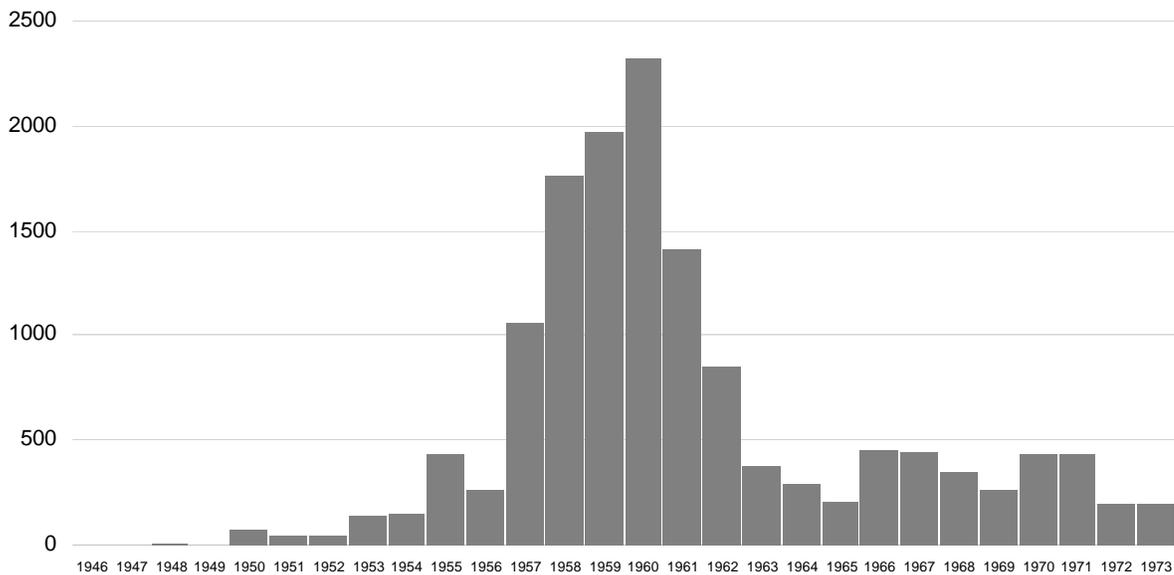


Figure 13

Source: Adapted from Maricopa County Assessor data 1999

development patterns based on existing conditions suggest that only ten homes were built in Scottsdale’s postwar subdivisions during the forties. In the early fifties, after Scottsdale incorporated as a town, 458 new single-family homes were built. The early physical data may not accurately reflect initial postwar construction trends in Scottsdale, however, because redevelopment near the original townsite has caused at least two of the earliest postwar subdivisions either to be demolished or have their uses altered. As a result, they would not currently appear as residential subdivisions in the Maricopa County Assessor data.

Just as the nation’s early postwar housing boom was ending, Scottsdale began its most productive period of housing construction. This period started in

1955 and lasted into the early sixties, when almost 10,000 new single-family homes were constructed as shown in the previous figure. In 1957, the arrival Motorola as of a major employer, set off Scottsdale's housing boom. Further, housing costs in the Phoenix area were the third lowest in the nation, which also helped facilitate Scottsdale's postwar boom.

An economic downturn in the early sixties affected the number of new single-family home starts, although historic housing studies indicate that Scottsdale fared better in terms of tract home sales than most other Phoenix area communities. For the rest of the sixties, single-family housing production in Scottsdale stayed below 500 homes per year, falling to about 200 annually in the early seventies. This occurred as prices rose and land became less available, particularly the agricultural parcels which already had access to water and were therefore cheaper to develop for residential uses. By 1967, 82 percent of the available land south of Indian Bend Road had been developed (Valley National Bank 1967). Also, condominiums and townhomes became more popular, because of both changing demographics and rising land costs. Beginning in 1969 an average of almost 700 of these units were built in Scottsdale annually through 1973.

Most of Scottsdale's early development through the mid fifties happened within a four mile radius of the original townsite, with a small bit of residential subdivision construction occurring in what was then known as "Northwest Scottsdale" near the country club by Shea Boulevard and Scottsdale Road. As the postwar era progressed, the developments fanned farther out from the downtown, though some small infill projects were still constructed closer in.

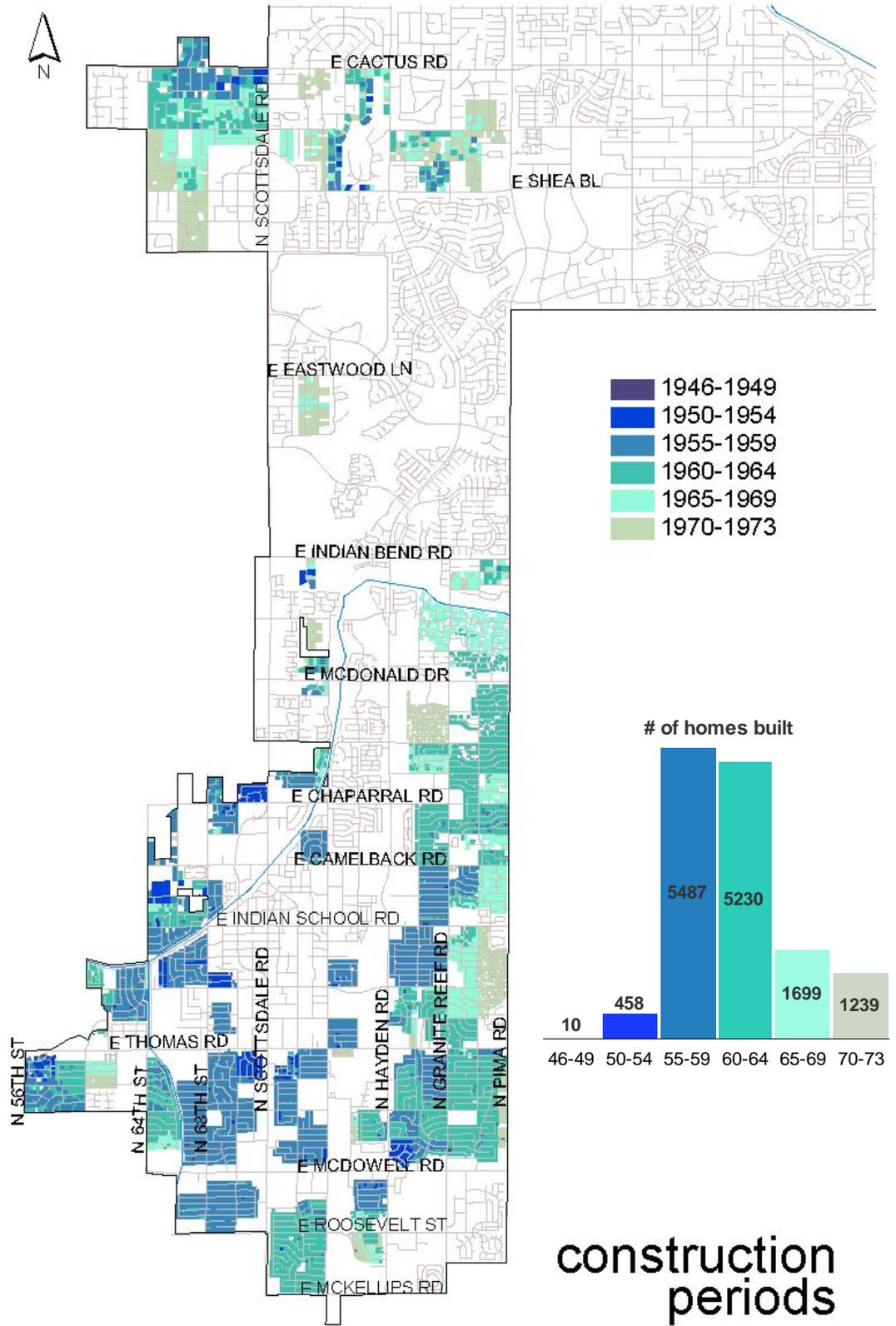


Figure 14 Construction Periods Map
 Source: Adapted from Maricopa County Assessor data 1999

ARCHITECTURAL STYLES

In Arizona, the typical postwar home was “a single-level, ranch style house, with walls of concrete block, floors of concrete, and low-pitched roofs covered with asphalt shingles” (Lynch 1961, 75). This also fit the description of a typical postwar house in Scottsdale, where 96 percent were single story, 71 percent were constructed with block exterior walls and 77 percent had asphalt shingle roofs. Most roof styles were gable, hip, or a modified hip shape with the broadside to the street. Scottsdale’s typical single-family home also had a carport as well as a covered patio (Maricopa County Assessor 1999).

However, both the physical characteristics data and the reconnaissance level field surveys conducted as part of this study revealed distinct variations in the architectural styles of homes found in Scottsdale’s postwar subdivisions. In most cases, the variations were subtle modifications to the basic ranch style, usually obtained by adding a new material or rearranging materials on the front façade. In addition to the ranches, there were other modern architectural styles that characterized Scottsdale’s postwar single-family homes, including contemporary and split-level. In the late sixties a shift from modern to eclectic designs began, as Mediterranean influenced details were incorporated.

The physical data and field surveys reflected that Scottsdale’s postwar subdivisions were generally characterized by homes with the architectural styles outlined below. Earlier subdivisions tended to be more homogenous in style. Toward the end of the fifties, however, it became increasingly common for builders to mix designs within the development, while repeating features or detailing among different homes to provide cohesiveness.

Simple Ranch

- Single story
- Rectilinear or "L" form
- Little variation in façade and plan
- One exterior wall material, typically block or brick, no variation in treatment of materials
- Little or no extra detailing, such as shutters, special cut fascia board or porch posts
- Single car carport
- Usually lacked a defined front porch
- Characteristic style found in many early fifties subdivisions
- In the late fifties and early sixties many subdivisions had simple ranches mixed with other styles
- Typically constructed on smaller postwar lots 5,000 to 9,000 square feet
- Smaller, economy homes usually under 1,600 square feet, with five or six rooms, and one to two small bathrooms



Figure 15 Simple Ranch Style Homes in Scottsdale
Source: Author 2001

California Ranch

- Single story
- Long horizontal form often rambling or with projecting wings and with the broadside to the street
- Combination of two or more exterior wall materials across front façade, such as block, board-and-batten or wood siding over a band of brick, weeping mortar block, stucco or stone
- Roof typically asphalt shingle or wood in more expensive examples



Figure 16 California Ranch Style Homes in Scottsdale
Source: Author 2001

- Front porch extended across the front façade with supporting posts or minimal front porch overhang between projecting wings
- Two car garage or carport
- Ornamental trim frequently included shutters
- Common style for mass produced tract homes constructed in the late fifties and early sixties
- Most prolific style used in Scottsdale's more expensive tract and custom homes

Character Ranch

- Single story
- Homes portrayed “personality” detailing on the front façade to convey the character of a Western Ranch, Swiss Chalet, English Tudor, or Dutch Colonial
- Exterior walls predominantly block or brick with additional wall materials used to define the character including wood, brick, and stone accents
- Weeping mortar commonly used on the Swiss Chalet and occasionally on the English Tudor styles
- Chalet character defined by scrolled fascia board pattern, asymmetrical and wide gable hoods over windows or an extension of gable roof strip beyond the eaves
- English Tudors characterized by variation in facade materials and treatment and steep pitched hoods over windows



Figure 17 Character Ranch Style Homes
Source: Author 2001

- Dutch Colonials defined by gambrel hood over windows or a gambrel garage roof
- Swiss Chalet characters were the most popular of the personality styles
- Swiss Chalets were the economy characters while English Tudor and Dutch Colonial characters were built in more expensive subdivisions
- Associated with tract subdivisions of the late fifties and early sixties

Contemporary

- Single story
- Rectilinear plan
- Extremely low pitched gable roof built up using impermeable materials, usually with gable ends to the street
- Band of contrasting block or brick across bottom of front façade, often merging into front fence
- Architectural details such as unusual block patterns or porch posts
- Glass window walls and glass tucked beneath gable roof ends
- Carports more common than garages
- Early fifties examples were simple, small and inexpensively built
- Late fifties and sixties examples were progressive and designed by architects



Figure 18 Contemporary Style Homes in Scottsdale
Source: Author 2001

Tri-Level

- Three story split level including a ground floor and two half stories up and down
- L shaped plan
- Often used California Ranch or character ranch accents
- Larger than typical ranch homes with an average of 2,200 square feet, eight rooms, and two and one half bathrooms
- Constructed in the late fifties and sixties
- Style found in four main subdivisions mixed with other ranch styles



Figure 19 Tri-Level Style Home in Scottsdale
Source: Author 2001

Los Ranchos

- Single story
- Very low pitched roof
- Wall materials typically slump block, concrete block or stucco
- Arched windows, porches and entries
- Two car garage
- Wrought iron gates, railings, and wall ornaments
- Constructed in the late sixties and seventies



Figure 20 Los Ranchos Style Homes in Scottsdale
Source: Author 2001

Post Ranch

- Two main variations: Spanish style and 1970s modern
- Flat roof on Spanish post ranch; shed roof on modern style
- Wall material typically slump block or stucco on Spanish post ranch; wood or stucco most common on seventies modern styles
- Spanish post ranch appeared in late sixties and was characteristic of more expensive subdivisions
- Modern style constructed as inexpensive infill housing in early seventies



Figure 21 Post Ranch Homes in Scottsdale
Source: Author 2001

PHYSICAL CHARACTERISTICS

Lot Size

According to national trends, average lot sizes in the postwar era ranged from about 7,500 square feet in 1950 to almost 13,000 by 1969. By the late sixties it was the small-volume builders who tended to have the largest lots, almost 14,000 square feet, with the widest street frontage, averaging 94 feet. Large-scale developers had the smallest average lot sizes, less than 11,000 square feet and 79 feet of frontage (Simulchrast and Frankel 1970, 100).

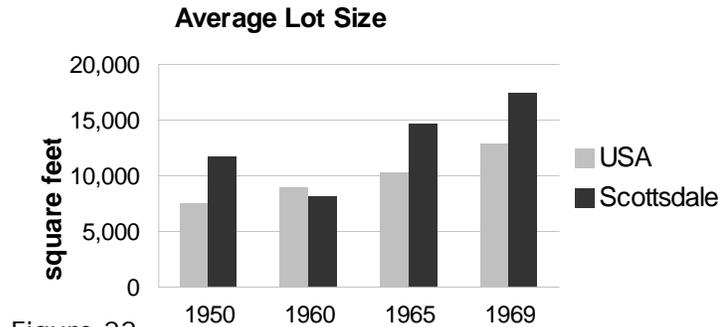


Figure 22

Sources: Adapted from Simulchrast & Frankel 1970 & Maricopa County Assessor data 1999

The average single-family lot was 11,000 square feet in postwar Scottsdale subdivisions. Before 1955 and after 1962 lots in Scottsdale were much larger than the national average, in many cases 35 percent greater. This trend indicates that during the two periods that sandwiched Scottsdale's boom, its single-family developments tended to be much more upscale builder or possibly custom homes than what was typical across the nation. Most of the larger lots are west and north of the Arizona and Cross Cut canals, where the zoning put in place by Scottsdale called for a half to one acre minimum lot sizes.

Scottsdale - Lot Size Trends

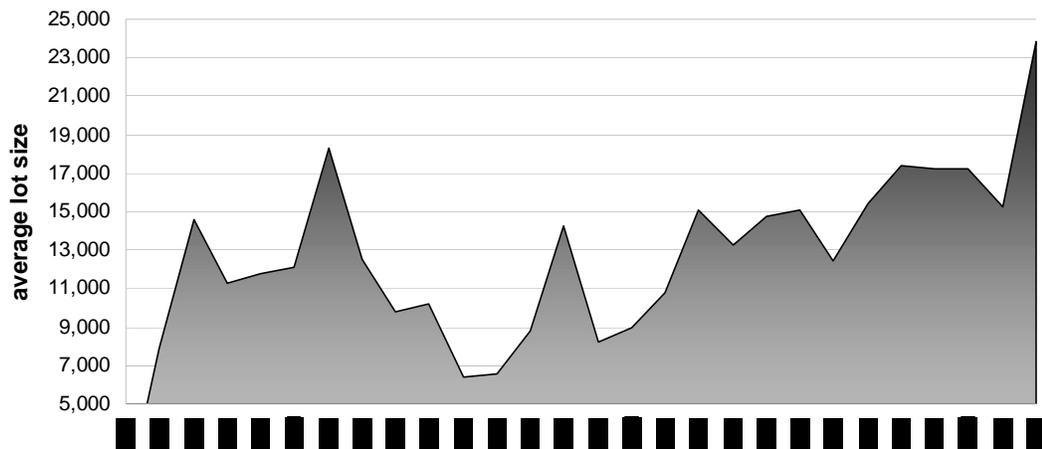


Figure 23

Source: Adapted from Maricopa County Assessor data 1999

During Scottsdale's boom period lot sizes were actually about ten percent smaller than the national average, another indication this was a period of high demand for housing in the city. Virtually all of Scottsdale's subdivisions that reflect typical postwar lot size patterns are south of the Arizona canal. The smaller lots are in the tract subdivisions that were constructed on former agricultural plots where water was available, which was one of the factors hampering development in areas to the north. Later in the postwar period larger lot sizes also reflected deliberate planning efforts by the City. The General Plan zoned areas north of Indian Bend Road to allow no more than one house per acre (Valley National Bank 1967).

As developable land became less available, the price of raw land rose. In spite of this, Arizona had one of the lowest finished lot prices in the country, with an average selling price of about \$5,300 in the late sixties. Prices were actually ten percent cheaper in the Phoenix area, though lot costs were increasing just as they were nationwide. Values in Phoenix rose 75 percent during the sixties and the typical finished lot price went from \$2,700 in 1960 to almost \$4,900 by the end of the decade (Simulchrast and Frankel 1970, 42-43).

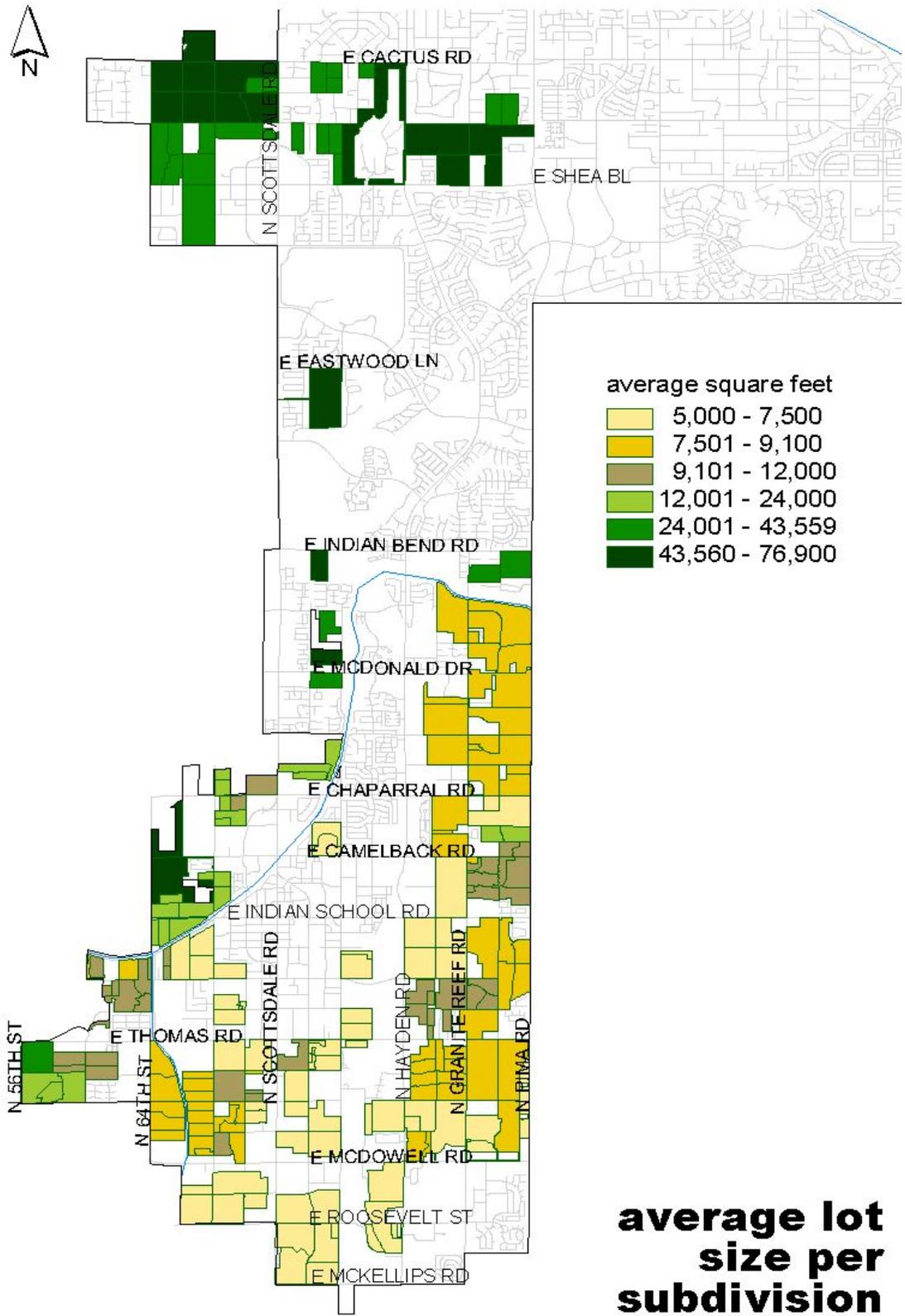


Figure 24 Map of Average Lot Size per Subdivision
 Source: Adapted from Maricopa County Assessor data 1999

House Size

Initially after the war the national trend was for house sizes to be quite small, typically under 1,000 square feet because the severe housing shortage required a focus on quantity. Also, FHA guidelines put a \$10,000 ceiling on mortgage loans it would insure so construction costs had to be kept down (Stewart 1979; Martin 2001). Early Scottsdale development seemed to buck this trend completely, suggesting that pent-up demand was not driving development in the early postwar years as it was elsewhere in the country. However, this picture may be skewed by the fact that some of Scottsdale's earlier subdivisions no longer exist, and these were likely to reflect more typical early postwar development patterns.

Scottsdale's House Size Trends

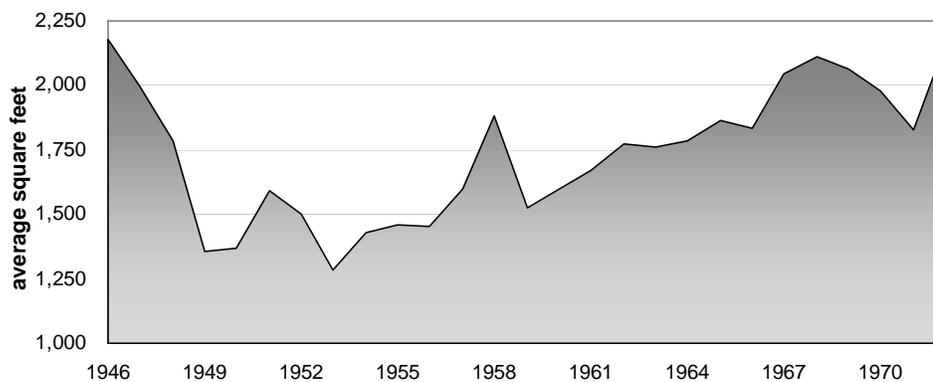


Figure 25

Source: Adapted from Maricopa County Assessor data 1999

Current conditions suggest that Scottsdale's home sizes were larger than average, particularly between 1946 and 1953. Given the relatively small number constructed up till then (fewer than 400 homes) and their greater than average square footage, this suggests that some of the early houses in Scottsdale were more expensive than the typical early postwar tract home, and perhaps even custom constructed.

Nationwide between 1945 and 1950 "the representative dwelling became the minimum two bedroom VA or FHA development house bought with little or no equity" (Stewart 1979, 473). Given the low FHA and VA lending ceilings, Scottsdale's early homes were probably conventionally financed, as their larger size suggest that many likely exceeded loan maximums set under government insured programs.

In 1954 the average single-family house size in Scottsdale was less than 1300 square feet. This was the only year in the postwar period that houses were this small, though they were still larger than the national average. After that, house size increased steadily every year through 1959 when the average house was almost 1900 square feet. In 1960 the average home size decreased to less than 1600

square feet, a fifteen percent drop. This same year was also the peak of Scottsdale's postwar single-family home construction activity, with over 2,300 houses built. This indicates a period of high demand for housing. This demand was stimulated by Motorola's expansion and the arrival of other large local employers whose workers needed housing.

By 1961 housing sizes again increased and continued to do so for the rest of the postwar era. The trend toward increasing sizes in the late fifties and sixties was typical of national patterns. FHA raised their loan ceiling to \$25,000 in 1955 because American families required more space and separated spaces as they grew in household size and as children got older. However, the average home in Scottsdale continued to be even bigger than the typical postwar house in the sixties and early seventies. This was also when lot sizes exceeded national averages. These patterns indicate that Scottsdale was developing into one of Phoenix's more expensive residential subdivisions.

The locational pattern of the subdivisions also reflected differences in development north and west of the canals that run through Scottsdale. These areas had the largest homes, with most exceeding 1900 square feet. The more modestly sized homes were south and east of the canals and more closely compared with typical postwar housing sizes nationwide. These patterns indicate Scottsdale had distinct areas that reflect typical postwar subdivisions as well as those that were somewhat atypical and more upscale.

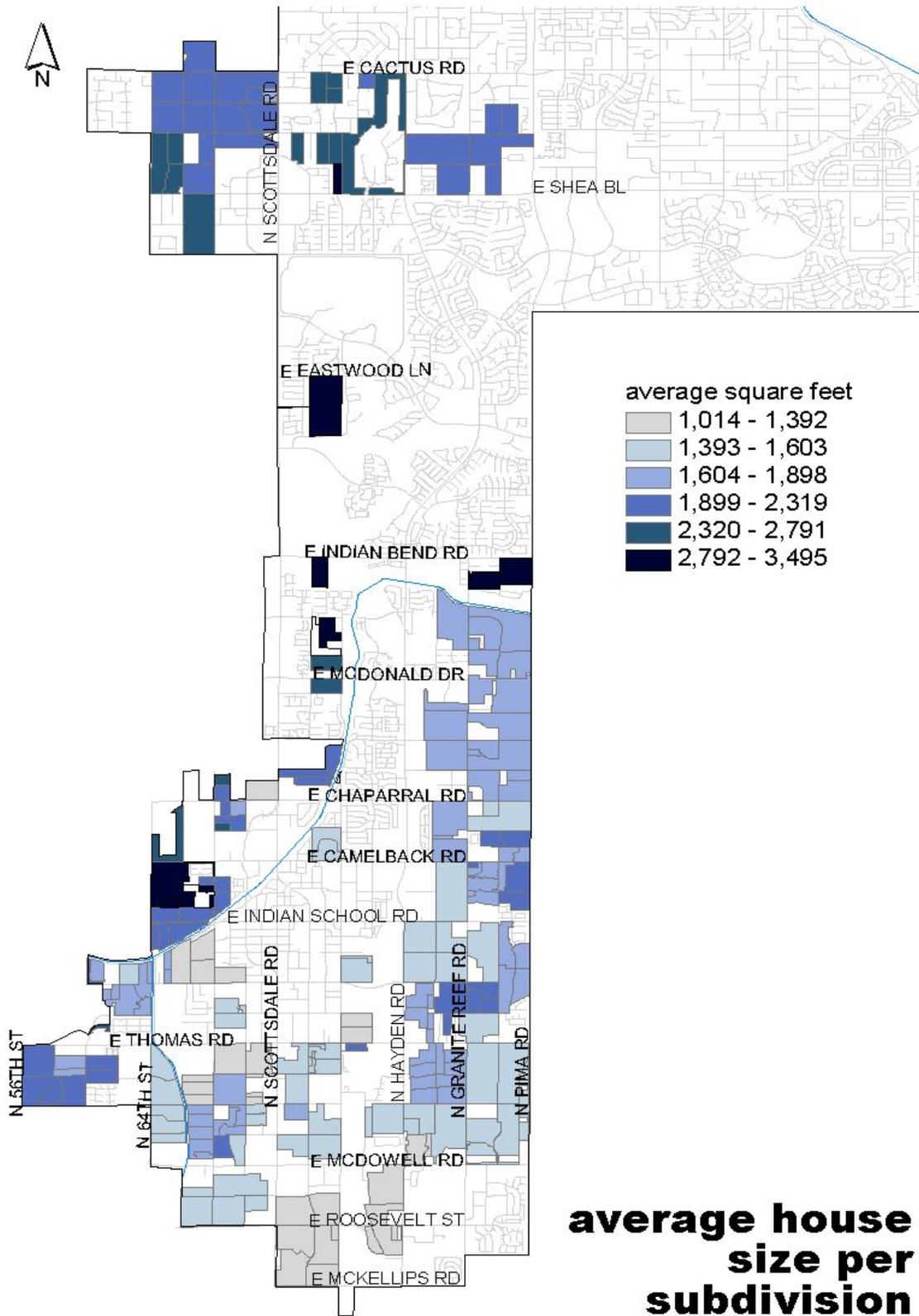


Figure 26 Map of Average House Size per Subdivision
 Source: Adapted from Maricopa County Assessor data 1999

Rooms

In early postwar years, the average American home was small, and most had four or five rooms. However, Scottsdale's postwar homes were an anomaly, starting with an average of nine rooms per home in 1947, seven in 1948, six in 1949, dropping to five in 1950. This pattern suggests that the twelve homes built in Scottsdale in the late forties were probably custom homes or were altered by room additions.

Scottsdale - Rooms

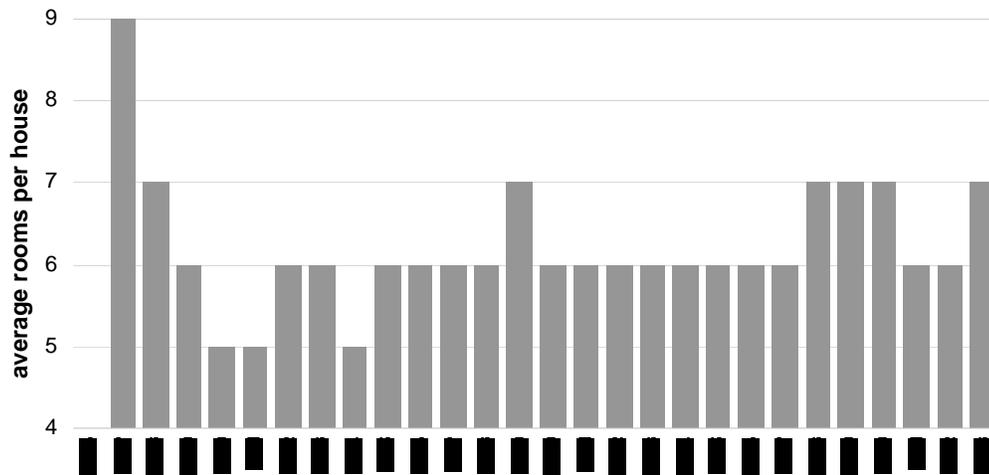


Figure 27

Source: Adapted from Maricopa County Assessor data 1999

None of the postwar subdivisions in Scottsdale averaged only four rooms, even though this was common in postwar homes elsewhere. Starting in 1950 and continuing almost nonstop through 1967, homes in Scottsdale averaged five or six rooms indicating these developments were more reflective of national housing trends. Briefly in 1959 the average went to seven rooms. By the late sixties, the average house in Scottsdale again had seven rooms though nationwide fewer than one in five homes had this many. Although average room numbers remained steady for many years in Scottsdale, average house size continued to increase, indicating that the size of the rooms in Scottsdale's postwar homes was getting larger.

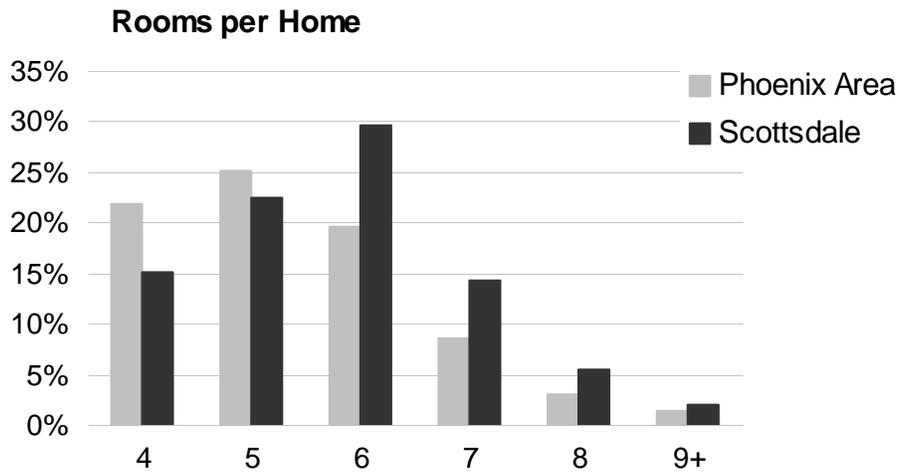


Figure 28
 Sources: Adapted from U.S. Census Bureau 1970 &

Family rooms that served as multipurpose activity spaces became increasingly popular in postwar homes. In addition, in the late fifties, with the increase in televisions, stereos, and teenagers, American homes required more rooms to separate activities. The trends in Scottsdale reflected these influences.

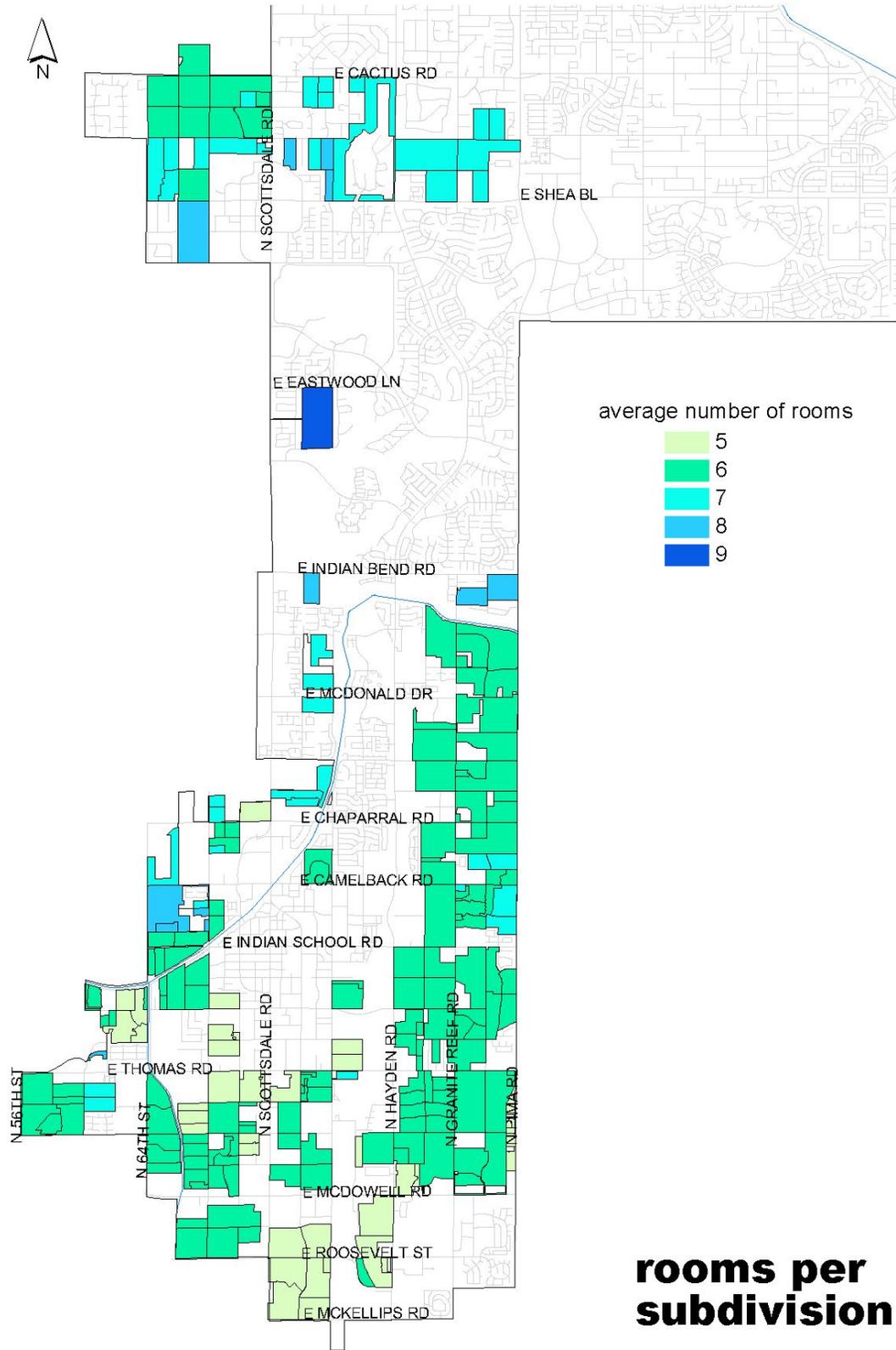


Figure 29 Map of Rooms per Subdivision
 Source: Adapted from Maricopa County Assessor data 1999

Bathrooms

Like rooms, the average number of bathrooms in Scottsdale was unusually high to start. Though it was quite common for postwar homes to have just one bathroom, Scottsdale had only two subdivisions that averaged just one bathroom.

Scottsdale - Average Bathroom Fixtures per Home

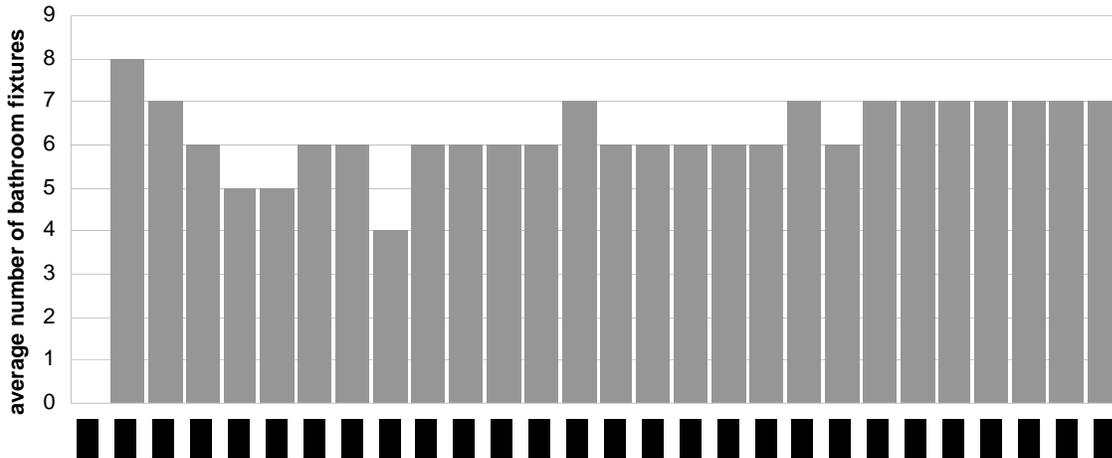


Figure 30
Source: Adapted from Maricopa County Assessor data 1999

Virtually all had a minimum of one and a half bathrooms. After 1964 most homes in Scottsdale had seven bath fixtures, suggesting that there were two bathrooms -- one with both a tub and shower and the second with perhaps just a shower. These patterns reflected the trend toward master bathrooms, which grew increasingly common in postwar homes by the end of the era.

Bathrooms per Home

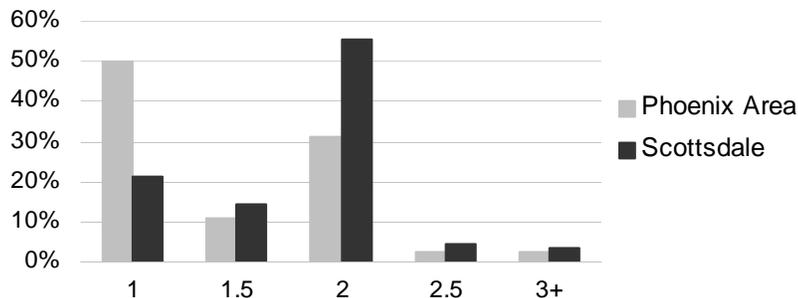


Figure 31
Source: Adapted from U.S. Census Bureau 1970

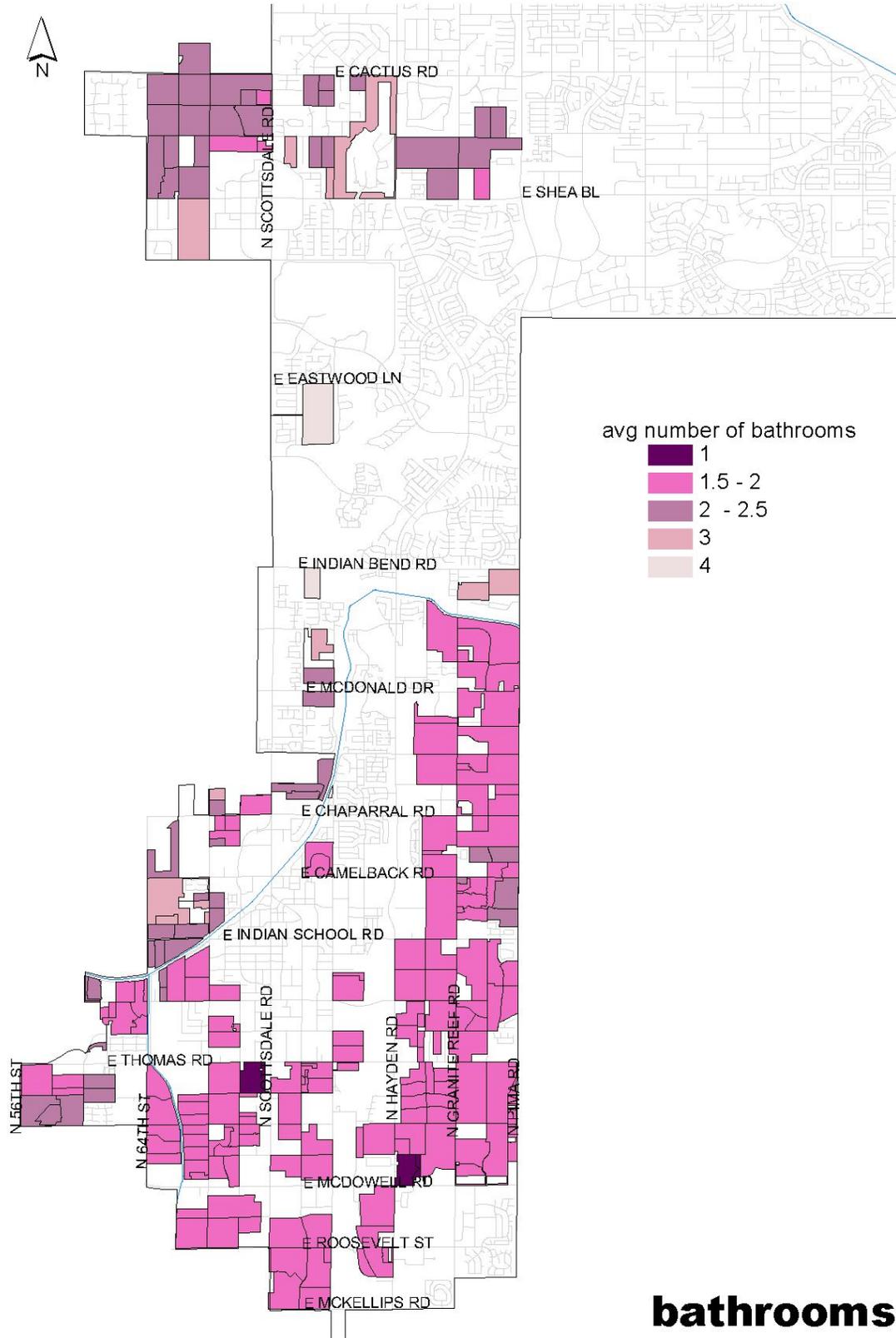


Figure 32 Map of Bathrooms per Subdivision
 Source: Adapted from Maricopa County Assessor data 1999

Wall Materials

Lumber was difficult and expensive to obtain in the early postwar years because of the huge demand that war housing production had placed on its supply (Doan 1997; Solliday 2001). As a result, Arizona builders turned to other construction materials, choosing those that were inexpensive and readily available. Masonry materials were the most frequently used and these included block, brick, and stone. Block, and particularly pumice block made from native volcanic scoria materials, became the choice for the majority of Arizona builders. It was cheap, costing an average of \$500 less per house than wood, and was locally manufactured. The Phoenix-based Superlite Builders Supply Company was largely responsible for the product's success, having grown from a plant with one small block machine in 1946 to the largest block plant in the United States by 1962. By then, it was estimated that 85 percent of the new homes in the Phoenix area were constructed with block exterior walls. Masonry materials were also favored because they required less upkeep. To vary the houses and "relieve the monotony of a great expanse of masonry, one wall or a section of wall often [was] covered with wood siding or board and batten" and redwood was a popular choice because it had a reputation for being the easiest to maintain in dry climates (Arizona Days and Ways 1962, 412; Lynch 1962, 82).

Exterior walls were predominantly constructed of block in the majority (71 percent) of Scottsdale's postwar subdivisions, although there was more variety in wall materials than in most other Phoenix area communities. The next most popular material was brick. Four percent of Scottsdale's homes had stucco walls, three percent were constructed with wood, and two percent used slump block. A handful of homes were built with adobe or stone. As with other physical characteristics, the wall materials used in Scottsdale's postwar homes reflected something more upscale. Almost twenty percent of its postwar homes had brick walls, a material almost three times as expensive as block (Arizona Masonry Guild 1963). Most of the brick homes were built during Scottsdale's boom from 1956 to 1961. At a time when single-family home construction was happening at a frenzied pace because of the huge demand for housing that followed Motorola's move to the area, the brick homes would have offered buyers a choice and would have stood out among the many block houses. Brick was hardly used after 1961 and block continued to be the most common material. However, in the early seventies the use of block dropped dramatically and builders began using wood, stucco, and slump. In part, this reflected a trend toward the use of more organic looking materials. It also was the result of labor disputes in the sixties between developers and local crafts unions that dealt a serious blow to the masonry guild. The number of skilled bricklayers diminished thereafter (Foster 1967).

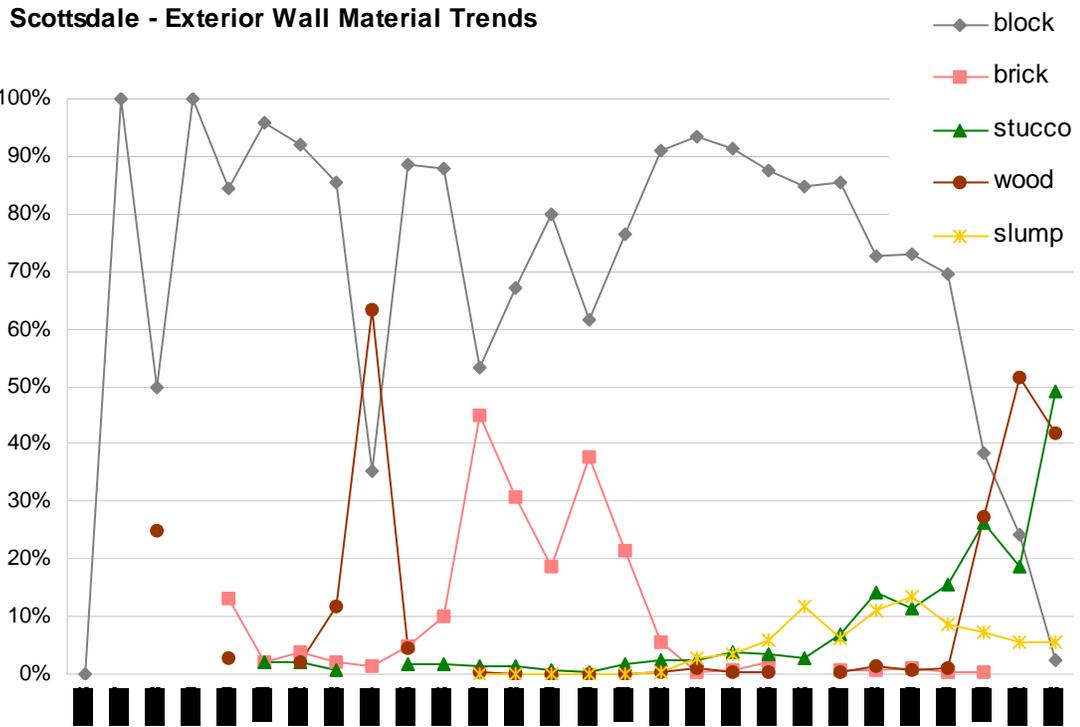


Figure 33
 Source: Adapted from Maricopa County Assessor data 1999

The following map illustrates that most of the typical tract subdivisions south and east of the canals were built with block and brick. Some of the subdivisions with the smallest homes were built with wood frame walls. In "Northwest Scottsdale" (as the area near Cactus and Scottsdale Roads was historically called) stucco and slump block were common, particularly in the seventies as housing styles changed from ranch homes made with block to ranch homes made with slump block, and then to a style that was no longer a ranch, but instead was a Neomediterranean style.

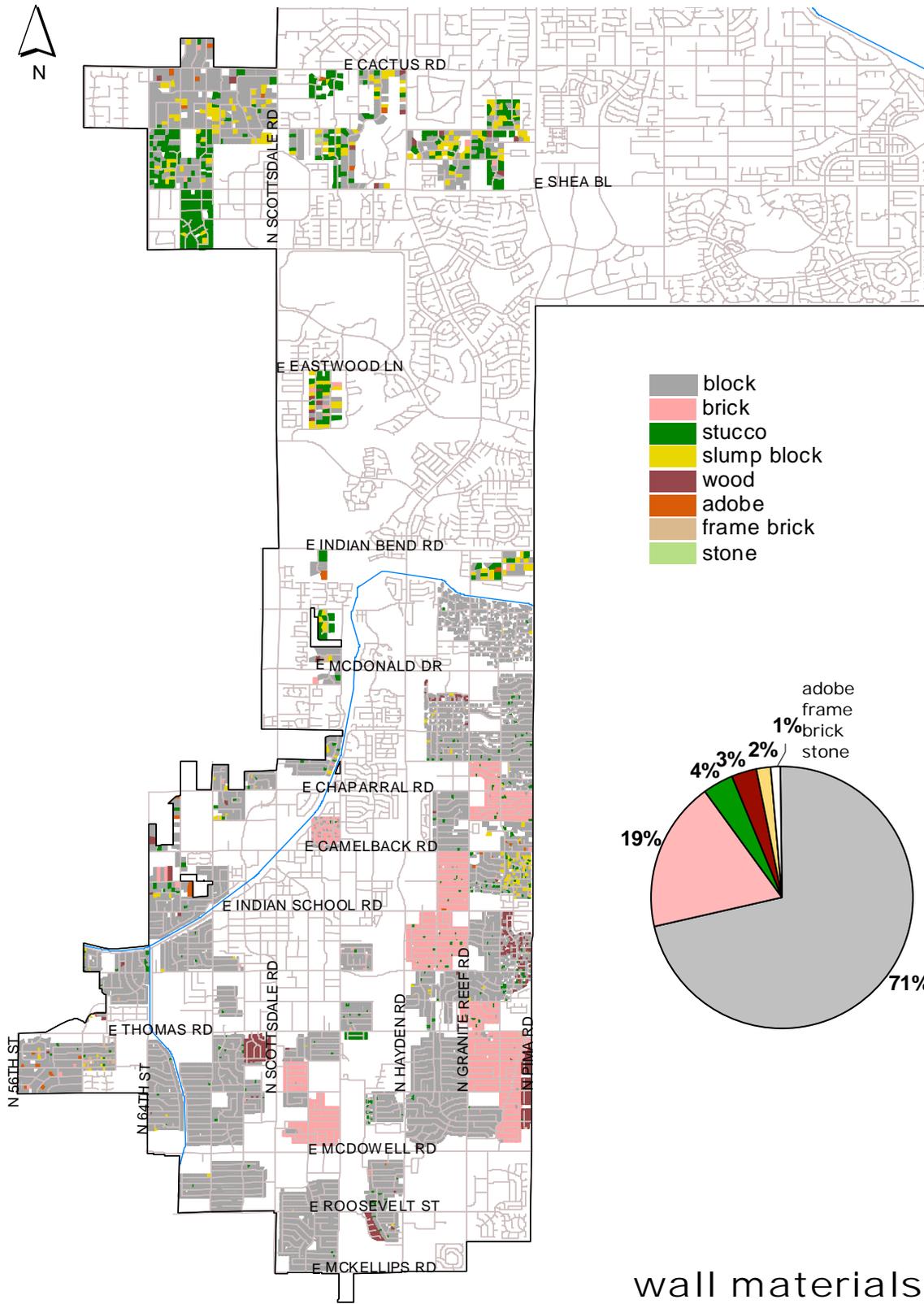


Figure 34 Map of Wall Materials
 Source: Adapted from Maricopa County Assessor data 1999

Roof Materials

The most common roofing material used on Scottsdale's postwar modern homes was asphalt shingle, which was typical nationwide. This material was readily available, durable, and inexpensive.

A built up roof using waterproof, impermeable materials was usually applied to houses that had flat or very low pitched roof forms. Therefore, the presence of a built up roof suggested that the home was either a contemporary or post ranch Spanish style design. In the early fifties, many homes were inexpensively constructed using low-pitched roof trusses to save on lumber costs and the use of built up roof materials in Scottsdale reflects this pattern. However, by the late fifties a built up roof material was indicative of an architect designed contemporary style home. Toward the end of the sixties the built up roof material was commonly applied to Spanish casita style homes with flat roofs that were appearing in the post ranch transitional period.

More expensive asbestos shingle, tile, and wood roof materials originally appeared on almost ten percent of the homes. In some tract subdivisions wood roofs were a distinctive feature found on all the houses; however, field surveys suggest this character defining neighborhood trait has been substantially altered and many roofs have been resheathed with asphalt shingles and other materials.

Developments showing a mosaic of roof materials suggest a custom home pattern of construction where heterogeneity of design characterizes the neighborhood. This is true of the area near Thomas Road and 56th Street as well as some developments north of the canal, particularly in historic "Northwest Scottsdale."

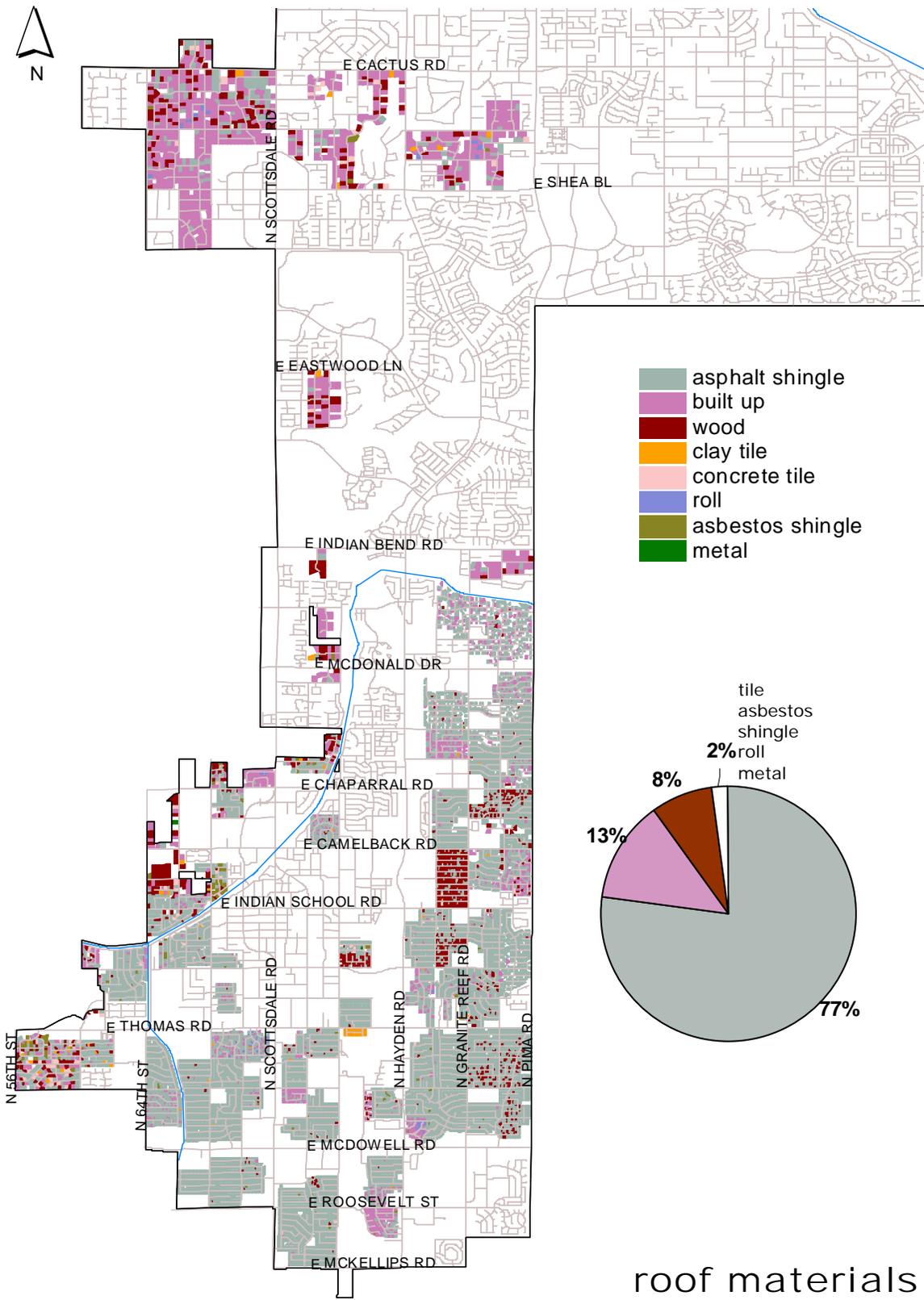


Figure 35 Map of Roof Materials
 Source: Adapted from Maricopa County Assessor data 1999

Carports and Garages

National trends indicate that by the late sixties most homes (54 percent) had a two car garage, eighteen percent were constructed with a one car garage, fifteen percent had a carport and thirteen percent had neither (Simichrast and Frankel 1970, 21). In the warmer parts of Arizona however, carports were more popular than garages because there was little need to protect a car from the cold (Lynch 1962). Carports were also cheaper than garages, which was one reason Arizona's average home price remained lower than the national average in the postwar period.

In Scottsdale carports were more popular in the early postwar years. However, by the 1960s garages began appearing as a standard feature on more and more homes, a trend that continued through the decade.

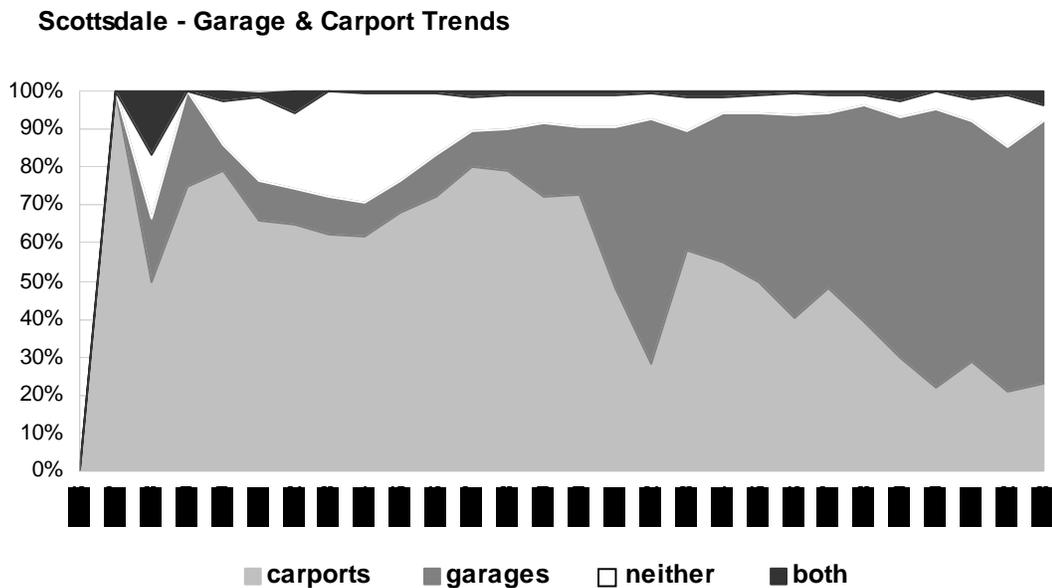


Figure 36

Source: Adapted from Maricopa County Assessor data 1999

The type of shelter provided for the car can be a character defining feature of neighborhoods as illustrated on the following GIS map. The exclusive use of either carports or garages creates a homogenous, repeating pattern within a neighborhood, suggesting a tract home development. In contrast, a mix of carports and garages creates a more heterogeneous appearance, suggesting a custom-built neighborhood.

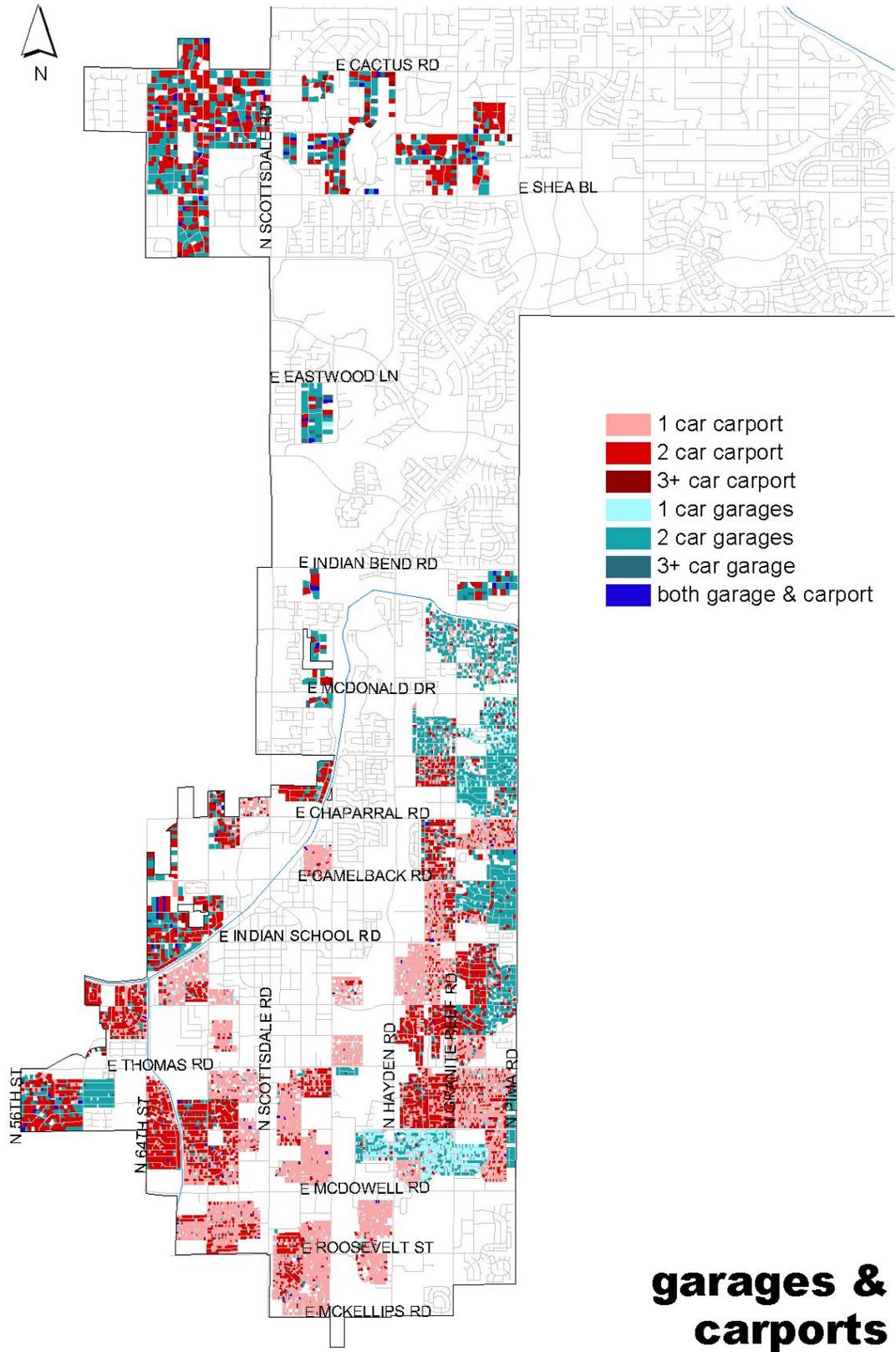


Figure 37 Map of Garages and Carports
 Source: Adapted from Maricopa County Assessor data 1999

Patios

The emphasis on indoor-outdoor living that characterized postwar lifestyles was particularly suited to Phoenix's sunny climate. In fact, a focus on outdoor living was highlighted during the postwar years as the thing all Arizona homes shared in common, with one observer noting that "this is a state of back-yard bugs" (Lynch 1962, 75). Most postwar homes incorporated some sort of porch or patio into their plan in a visual testimony to the popularity of an informal, outdoor-oriented lifestyle.

The patio was considered "the key feature of the Western ranch house" (May 1958, 19). As the era progressed, more emphasis was placed on "patio living" at the back of the house, away from street noise and off rooms that merged with a backyard geared to leisure activities. The backyard became "the thing... where one finds the patios, barbecue grills, and swimming pools" (Lynch 1962, 75). Consequently, house designs began to de-emphasize the front porch in favor of side and backyard patios. The porch shrunk to the point that it was often hardly more than an extended overhang covering the front entry. Compared to earlier suburban developments, there were few modern houses with front porches "that lived up to the name" in the postwar period (Lynch 1962, 82).

Almost three quarters of the homes in Scottsdale's postwar subdivisions included at least one patio. The homes without patios tended to be located in the less expensive tract subdivisions in the southern part of Scottsdale.

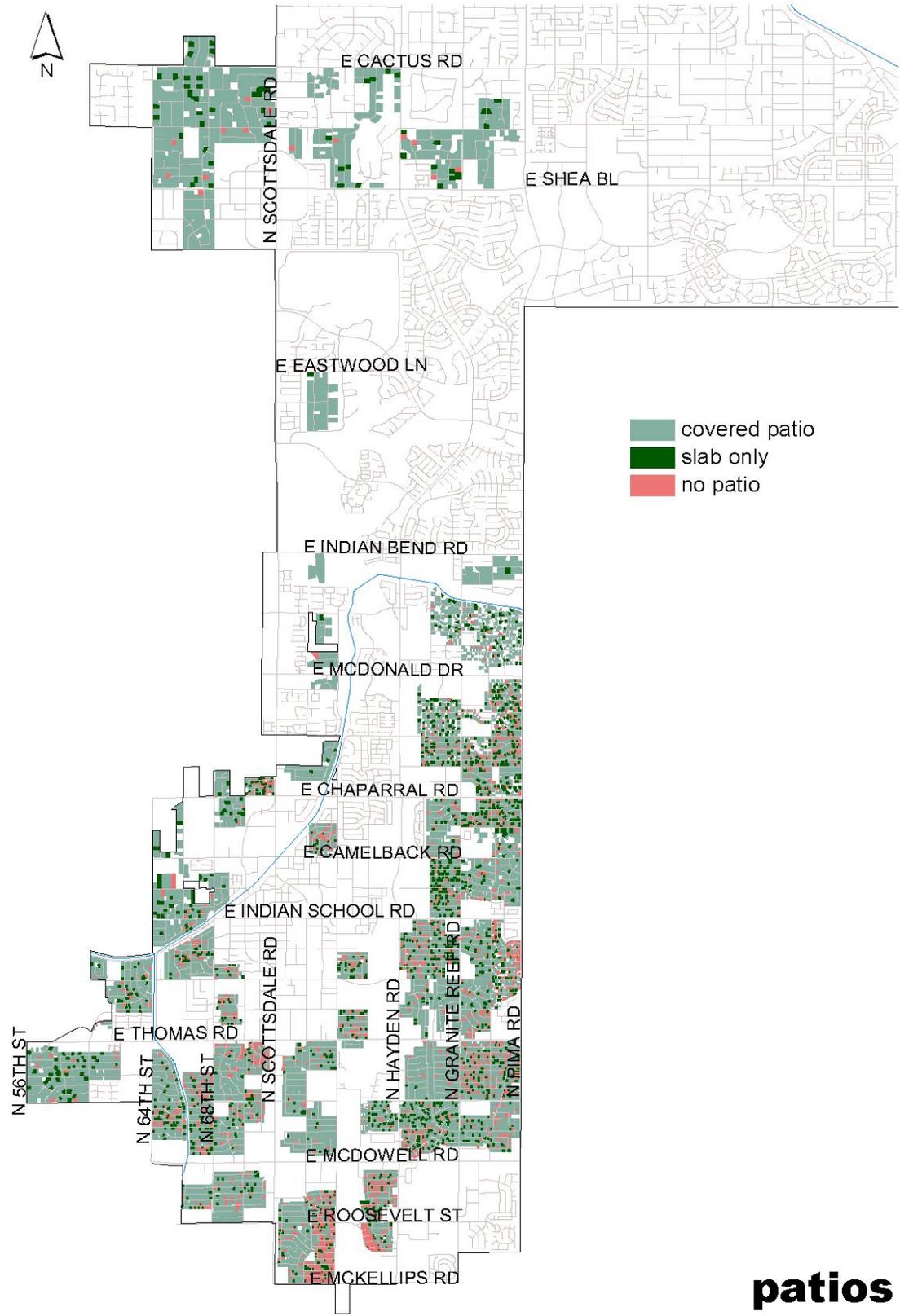
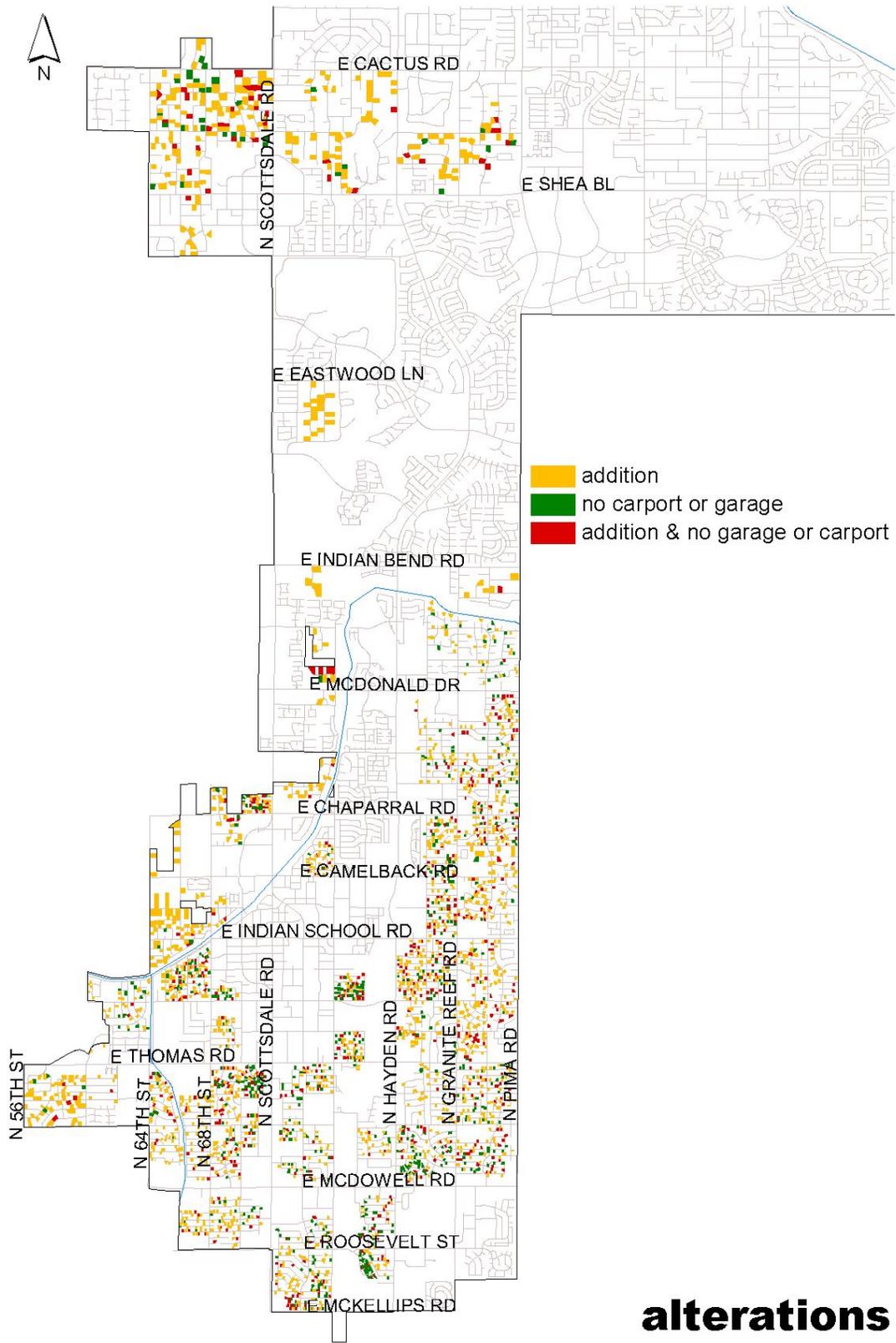


Figure 38 Map of Patios per House
 Source: Adapted from Maricopa County Assessor data 1999

Alterations

As was typical in the postwar era, Arizonans were “bitten by the do-it-yourself bug” and it was common to find homeowners involved in some sort of home improvement project. These projects ranged from the simple, such as planting flowerbeds in the yard, to the more extensive, such as remodeling or adding on a room. So popular were such endeavors that lumber yards were even said to “cater to the man who comes in on payday to invest a few dollars in materials that he can convert to a permanent asset in his home” (Lynch 1962, 83). Also, as family sizes increased carport and garage enclosures became a common method of adding space.

Scottsdale’s postwar subdivisions reflected this pattern of alterations, with an addition constructed on sixteen percent of the homes and the garage or carport enclosed on almost ten percent of the houses. Homes constructed earlier in the postwar period and those found in more expensive subdivisions tended to have a higher percentage of alterations.



alterations

Figure 39 Map of Alterations per House
 Source: Adapted from Maricopa County Assessor data 1999

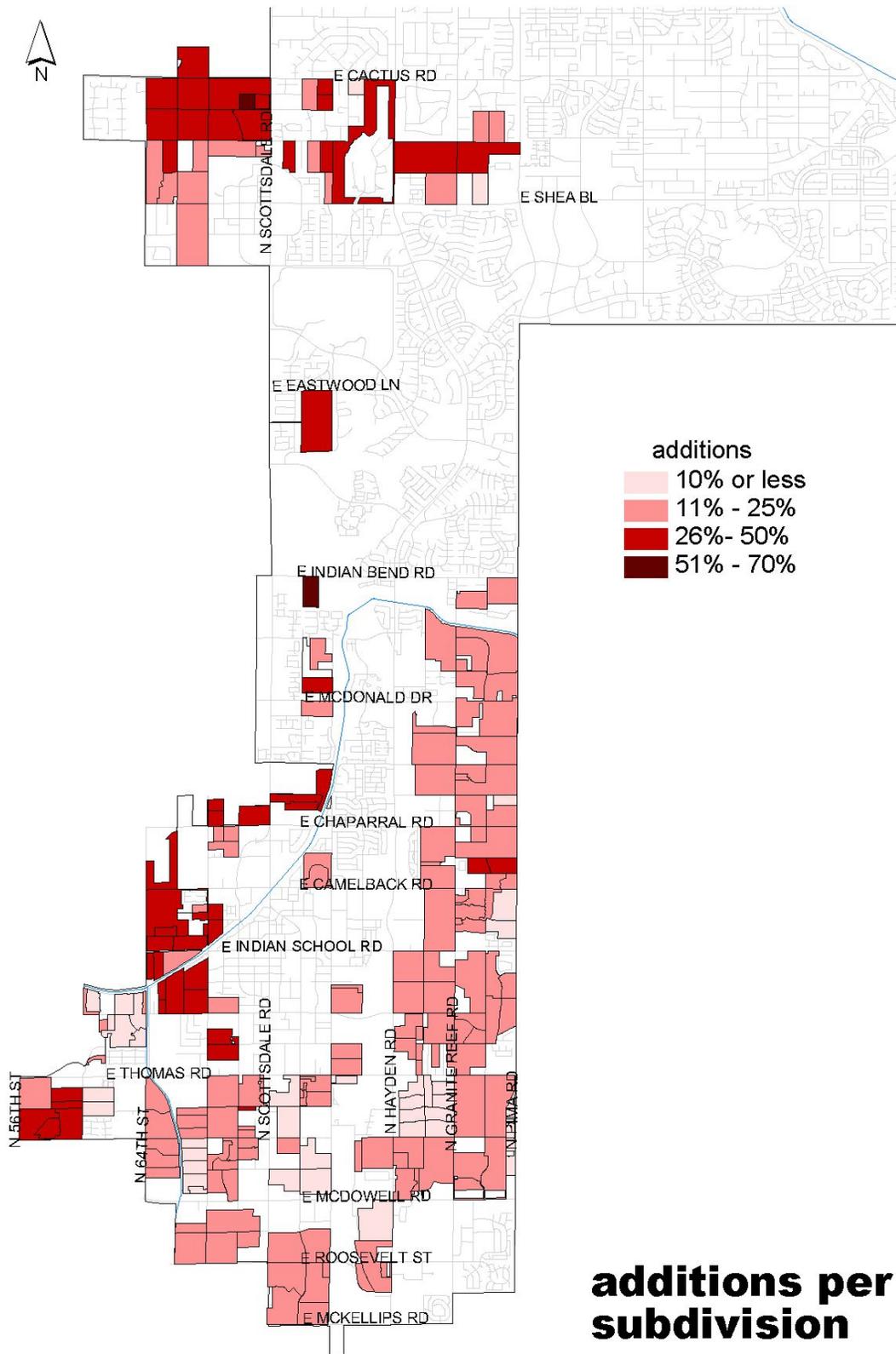


Figure 40 Map of Additions per Subdivision
 Source: Adapted from Maricopa County Assessor data 1999

CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The modern tract house is an icon of postwar America. Appearing by the thousands in subdivisions across the country, these homes are symbolic of technological advances, prosperity, and a hopeful new generation. They tell a unique story about the American dream and about postwar history and culture. As a result, many postwar subdivisions are worthy of preservation so that the best ones may continue to chronicle the tale for future generations.

The postwar subdivisions in Scottsdale reflect one of the City's most significant periods of development. The town expanded from a resort area and artists' colony with a very small permanent population to one of the most desirable residential suburbs in the Phoenix metropolitan area. In addition, it became the state's third largest city, growing from a population of 2,000 in 1950 to approximately 70,000 by 1973. In physical growth, the town expanded through annexation from its original 40-acre townsite in the area of Indian School and Scottsdale Roads in 1951 to cover almost 86 square miles by 1975 (Scottsdale Growth and Development Report 1986).

Analysis of the physical characteristics at both the individual home and subdivision levels using a Geographic Information System and field surveys helped identify the important historical themes that were significant in bringing about these tract and custom housing developments. This analysis also identifies the specific physical features that characterize Scottsdale's postwar subdivisions.

The physical development patterns of Scottsdale's postwar homes and their subdivision settings provide clues about federal housing policy, local planning activity, economic conditions, family composition, and the importance of leisure, entertaining, and outdoor living. These patterns reflect both national and local historic trends and influences associated with themes related to postwar community planning and development, federal housing policy, significant people including builders, developers, and architects, as well as specific construction methods, materials, and designs that characterize various architectural styles.

Findings indicate that Scottsdale's single-family subdivision developments from 1946 to 1973 reflect patterns that were both typical and atypical of housing patterns across the nation during this prosperous postwar period. Typical patterns included the suburban location of Scottsdale's residential subdivisions at the periphery of the original townsite and outside Phoenix, on land that was formerly agricultural or natural desert. Scottsdale's postwar subdivisions also reflected a range of sizes in terms of land coverage and number of homes -- typical of postwar development patterns when small to medium sized merchant builders and large-scale developers applied mass production techniques to housing. The similarity in appearance among tract homes was another typical postwar subdivision

characteristic found in Scottsdale, as were the slight variations to façade detailing that began appearing on homes by the mid fifties. In fact, many of the city's subdivisions reflected the influence of FHA guidelines in terms of subdivision design, lot size, house size, features, amenities, and even landscaping. One of the most obvious similarities with national trends was that most postwar houses were the ranch style, though there was some variety among the different ranch types; other styles were also present, including contemporary and tri-level homes.

This study also reveals physical characteristics that were somewhat atypical of postwar development. For example, Scottsdale did not experience its postwar housing boom until the mid fifties, when the early boom was already winding down in most parts of the country. Further, Scottsdale's housing and subdivisions from this era tended to be more upscale than typical developments elsewhere, helping to define the city as a premiere residential community. The lots and homes were larger with more bathrooms and other rooms per house than average. The homes in Scottsdale also exhibited more variety in building materials. At a time when 85 percent of the Phoenix area homes were constructed with inexpensive block, almost 20 percent of Scottsdale's homes were built using brick, which was almost twice as expensive.

THEMES OF SIGNIFICANCE

Community Planning and Development

The postwar residential subdivision boom experienced by Scottsdale between 1946 and 1973 was its most influential period of development as a city. During this period Scottsdale made the transition from an agricultural and resort town to one of the premiere residential communities in the country.

- Population jumped from 2,000 in 1950 to 70,000 by 1973; became third largest city in the State until early seventies
- City size grew from less than one square mile to almost 85
- Thunderbird Air Field introduced several thousand military personnel to Scottsdale during the war; many later returned to live.
- Major employer – Motorola opens up facility -- influential event in the development of Scottsdale's postwar subdivisions because it triggered seven year building spree and a population boom of professionals and their families.
- Most affluent community in metropolitan area during the postwar era based on income, education, and number of white-collar workers
- 236 new subdivisions and almost 15,000 single-family homes constructed—most being modern housing styles
- Family-oriented community based on demographic trends and physical development patterns

Federal Policy

- FHA: stimulated large-scale residential subdivision construction – provided financing for builders, insured mortgages for homebuyers, set “voluntary” design standards that influenced street patterns, subdivision layout, construction methods and materials, lot size, house size, features, amenities, design, and cost throughout the postwar period. Also stimulated the conventional mortgage market, which insured higher loan amounts for more expensive homes and custom homes such as some of those in Scottsdale
- VA: financed subdivision developers and insured low interest, “no down” mortgage loans for veterans; less stringent application of design standards than FHA

Significant Persons

- Dr. Dan Noble: Vice President of Motorola, inventor of two-way radio, regular winter visitor in forties and then became a resident in 1950
- Builders: Hallcraft, Del Webb; others need additional research
- Architects: Ralph Haver; others need additional research

Construction Methods, Materials and Design

- Production line method of construction applied to mass produce single-family housing in multiple subdivisions for the first time
- Locally manufactured materials – block, brick reflect use of native materials and the importance of the mining and manufacturing industries in Arizona
- Design: Modern architectural styles were the most prevalent style used in the construction of postwar housing – simple ranch, California ranch, character ranch, tri-levels, contemporary style, and los ranchos.

THE APPLICATION OF A GIS IN HISTORIC PRESERVATION

- A GIS is an effective method to study postwar development patterns in specific communities using public data about hundreds of residential subdivisions maintained for tax assessment purposes.
- A GIS provides physical details information that illustrates the “big picture” and helps characterize development patterns over time, geographically and descriptively.

- A GIS provides a detailed profile describing the “typical” home and “typical” subdivision. This ALSO helps identify atypical development.
- A GIS identifies “character-defining” features without doing extensive field survey work. When physical patterns are matched with historic trends, the important development influences and themes of significance become easier to identify.
- The broad picture points the path to future study so planners may proactively work to preserve the subdivisions that best represent a community’s development history, and not just settle for the ones that are left.
- A GIS can be used for intensive level study of individual neighborhoods, helping to identify patterns of alteration that may affect their historic significance.
- A GIS can be used to document characteristics of specific subdivisions and prepare historic preservation survey reports as well as the individual survey forms required by the National Register and the State Historic Preservation Office.
- GIS analysis can become a predictive tool to help identify architectural styles and development influences based on queries of multiple fields of data associated with known styles or development patterns.

RECOMMENDATIONS

- Research builders through archival newspaper reviews to learn more about their scaleS of operation and the physical patterns that were associated with their developments.
- Research setting and landscaping patterns.
- Identify early residential subdivisions that have been demolished or have had their uses altered to determine more about early postwar development trends in Scottsdale.
- Systematically survey specific subdivisions. Focus first on the oldest subdivisions that are already or will be eligible for historic designation. Look at what appear to be the best examples of “typical” development for the period. Look also at any that appear unusual, based on the GIS data (for example, those with built up roofs, asbestos shingles, wall materials other than block, a combination of wall and roof materials within the same subdivision, and those that have unusually large or unusually small homes, or other unique and/or distinguishing characteristics.)
- Perform additional GIS analysis at the subdivision level to better identify “typical” and “atypical” subdivisions.

- Map architectural styles in GIS. Further analyze physical patterns associated with specific architectural styles.
- Develop a timeline of events, trends and patterns.

REFERENCES

- "A Design-It-Yourself Kit." October 1963. *House and Home*. 103-106.
- Ames, David L. 2000. *Draft version of the National Register Bulletin on Suburban Development*. National Parks Service.
<http://www.cr.nps.gov/nr/whtnew.htm> (July 1999).
- Arizona Masonry Guild. 1963. *Masonry Costs, Specifications, Codes*.
- Baer, William C. Winter 1995. "When Old Buildings Ripen for Preservation." *Journal of the American Planning Association*. 61: 82-94.
- City of Scottsdale. 1973. *City of Scottsdale, Arizona Map*.
- City of Scottsdale. 1986. *Population Statistics 1960-1985, Growth and Development Report*.
- City of Phoenix. 1992. *Historic Homes of Phoenix: An Architectural and Preservation Guide*.
- Colean, Miles. L. 1944. *American Housing: Problems and Prospects*. New York: H. Wolff Book Manufacturing Company, Inc.
- Del Webb Development Company. 1953. *Archives, Campus Homes*. Phoenix, Arizona.
- Doan, Mason C. 1997. *American Housing Production 1880-2000*. Maryland: University Press of America, Inc.
- Fifer, Orien W. Jr. 1962. "The Phoenix Story." *Arizona Days and Ways Magazine: This is Arizona*. 519-529.
- Fishman, Robert. 1987. *Bourgeois Utopias*. New York: Basic Books, Inc.
- Foster, William Kirk. 1967. *An Analysis of the 1965 Arizona Construction Strike: Its Background, History and Economic Impact*. Master's thesis. Arizona State University.
- Fuller, Henry. 1962. "Arizona Builds and Builds and Builds." *Arizona Days and Ways Magazine: This is Arizona*. 269-291.
- Fudala, Joan. November 2001. "Municipal Background and History City of Scottsdale, Arizona – third draft."
- Grebler, Leo. 1950. *Production of New Housing*. New York: Social Science Research Council.
- Hayden, Dolores 1984. *Redesigning the American Dream: The Future of Housing Work and Family Life*. New York and London: W.W. Norton & Company.

- Hendershott Patric H. and Villani Kevin E. 1985. "Direct Intervention in the Mortgage Market." In Mitchell, Paul J. ed. *Federal Housing Policy and Programs*. New Jersey: The Center for Urban Policy Research.
- Hernandez, Mal. 1962. "Electronics: A Dynamic New Force on the Horizon." *Arizona Days and Ways Magazine: This is Arizona*. 441-446.
- Hess, Alan and Weintraub, Alan. 2000. *Rancho Deluxe: Rustic Dreams and Real Western Living*. San Francisco, CA: Chronicle Books.
- Fudala, Joan. 2001. *Historic Scottsdale: A Life From the Land*. San Antonio, Texas: Historical Publishing Network.
- Isenstadt, Sandy. Spring 2001. "Three Problems in Preserving the Postwar Landscape". *Forum Journal*. 35-42.
- Jackson, Kenneth T. 1985. *Crabgrass Frontier: The Suburbanization of the United States*. New York: Oxford University Press, Inc.
- Johnson, Wesley Jr. 1993. *Phoenix in the Twentieth Century*. Norman and London: University of Oklahoma Press.
- KAET, Channel 8. 2002. "Arizona Memories from the Sixties." (videocassette) Arizona State Univesity.
- Lynch, Cecil. 1962. "At Home in Arizona." *Arizona Days and Ways Magazine: This is Arizona*. 72-83.
- Martin, Christopher T. 2000. *Tract-House Modern: A Study of Housing Design and Consumption in the Washington Suburbs, 1946-1960*. Ph.D. diss., George Washington University.
- Maricopa County Planning and Zoning Department. 1960. *A Comprehensive Plan for Scottsdale, Arizona: The West's Most Western Town*.
- Maricopa County Planning Department. 1964. *A Comprehensive Plan for Maricopa County: Population, Community Growth, Existing Land Use*.
- Maricopa County Assessor. 1999. Residential Property Records (electronic database.)
- Maricopa County Recorder. 1929-1972. Plat Maps.
<http://www.recorder.maricopa.gov> (January 2001-June 2001).
- May, Cliff. 1958. *Western Ranch Houses*. Lane Publishing Company.
- McAlester, Virginia and Lee. 1984. *A Field Guide to American Houses*. New York: Alfred A. Knopf, Inc.
- Mitchell, Paul J. 1985. "Historical Overview of Federal Policy: Encouraging Homeownership." In Mitchell, Paul J. ed. *Federal Housing Policy and Programs*. New Jersey: The Center for Urban Policy Research.

- "Motorola Official Plans Move to Scottsdale." 1950. *The Scottsdale Progress*. 9 February.
- Myers, Patricia Seitters. 1988. *Scottsdale Jewel in the Desert*. Windsor Publications, Inc.
- National Commission on Urban Problems (Douglas Commission). 1969. *Building the American City*. New York: Frederick A. Praeger, Inc., Publishers.
- National Trust for Historic Preservation. 1991. *Basic Preservation Procedures, Information*. Series no. 48.
- Peterson, Gary G. 1989. "Home Off the Range: The Origins and Evolution of Ranch Style Architecture in the United States." *Design Methods and Theories*. 23: 1040-1059.
- President's Committee on Urban Housing. 1968. *A Decent Home*. Washington D.C.: United States Government Printing Office.
- Real Estate Research Corporation. 1964. Housing Market Analysis and Projections Phoenix Metropolitan Area.
- Real Estate Research Corporation. 1966. Economic Base Study: City of Scottsdale, Arizona.
- Realty and Research, Inc. 1961. Home Building Study Metropolitan Phoenix 1955-1960.
- Reed, Allen C. 1954. "Dream Homes by the Dozens." *Arizona Highways*. September: 25-30, 38-39.
- Rice, Robert R. 1979. Housing in the 1960's. In Fish, Gertrude ed. *The Story of Housing*. New York: MacMillan Publishing Company.
- Rome, Adam. 2001. *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*. Cambridge, U.K. ; New York : Cambridge University Press.
- Rowe, Peter. 1991. *Making a Middle Landscape*. Cambridge: The MIT Press.
- Rozhon, Tracie. 1999. "What's Long and Low and Getting Lonelier?" *The New York Times*, 16 December, B1.
- Ryden, Don. 1999. An Historic Resource Reconnaissance Survey of Pre-1955 Development in the City of Mesa Arizona. Phoenix, Arizona: Ryden Architects.
- Solliday, Scott. 2001. Post World War II Subdivisions Tempe, Arizona: 1945-1960. City of Tempe.
- Stewart, Kay K. 1979. "Twentieth Century Housing Design from an Ecological Perspective." In Fish, Gertrude ed. *The Story of Housing*. New York: MacMillan Publishing Company.

- Sullivan, Donald. 1979. "Housing in the 1970s." In Fish, Gertrude ed. *The Story of Housing*. New York: MacMillan Publishing Company.
- Sumichrast, Michael and Frankel, Sara A. 1970. *Profile of the Builder and His Industry*. Washington, D.C.: National Association of Homebuilders of the United States.
- U.S. Census Bureau. 1947. *Statistical Abstract of the United States: 1947*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1953. *U.S. Census of Housing: 1950. Vol II, Nonfarm Housing Characteristics, Part 4: Miami-Salt Lake City Standard Metropolitan Areas*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1961. *Statistical Abstract of the United States: 1961*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1961. *U.S. Censuses of Population and Housing: 1960. Final Report PHC(1)-117*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1972. *1970 Census of Housing, Vol 1, Housing Characteristics for States, Cities, and Counties, Part 4, Arizona*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1973. *1970 Census of Population, Vol 1, Characteristics of the Population, Part 4, Arizona*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1974. *Statistical Abstract of the United States: 1974*. Washington D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 1975. *Historical Statistics of the United States, Colonial Times to 1970*. Washington D.C.: U.S. Government Printing Office.
- U.S. Department of the Interior. 1998. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Washington D.C.: U.S. Government Printing Office.
- Valley National Bank. 1947. *Map of Greater Phoenix*. San Francisco: Rand McNally & Company.
- Valley National Bank. 1956. *Arizona Statistical Review*. Phoenix: Valley National Bank.
- Valley National Bank. 1958. *Greater Phoenix Street Map*. San Francisco: Rand McNally & Company.
- Valley National Bank. 1967. "Scottsdale Today." Arizona Collection, Arizona State University.
- Walker, Judy. 2000. "What to Save a Challenge for Historians." *The Arizona Republic*. 20 August, F4.

Weiss, Marc. A. 1987. *The Rise of the Community Builders*. New York: Columbia University Press.

Wright, Gwendolyn. 1999. "A Little Respect Please, for the Dream House." *The New York Times*. 7 February, AR33.

Zarbin, Earl. 1962. "Young in Years – Giant in Production." *Arizona Days and Ways Magazine: This is Arizona*. 408-416.

APPENDIX A: Scottsdale - Average Home Characteristics Table

Single Family Homes	total #	exterior walls						roof materials							house size average	bathroom fixtures	
		block	brick	stucco	wood	slump	other	% asphalt	% built up	% wood	% asbestos	% concrete tile	% clay tile	% roll			% metal
All Years:	14,123	71%	19%	4%	3%	2%	1%	77%	13%	8%	1%	1%	1%	0%	1663	6	
Year Built																	
1946	0															0	
1947	2	100%						100%							2180	8	
1948	6	50%			25%		25%	17%	17%	33%	17%		17%		1995	7	
1949	4	100%						50%	25%			25%	25%		1787	6	
1950	77	84%	13%		3%			45%	45%	4%	1%			1%	1354	5	
1951	49	96%	2%	2%				24%	51%	4%	6%	2%		12%	1369	5	
1952	51	92%	4%	2%	2%			18%	65%	12%	2%			2%	1589	6	
1953	143	85%	2%	1%	12%			54%	31%	7%	5%			3%	1500	6	
1954	150	35%	1%		63%			69%	13%	4%	3%	1%		9%	1282	4	
1955	435	89%	5%	2%	5%		0%	78%	6%	11%	2%	3%		0%	1428	6	
1956	266	88%	10%	2%				79%	3%	11%	5%	1%		0%	1456	6	
1957	1,056	53%	45%	1%	0%	0%	0%	88%	5%	4%	1%	1%		0%	1453	6	
1958	1,764	67%	31%	1%	0%	0%		88%	3%	7%	0%	1%			1597	6	
1959	1,974	80%	19%	1%	0%	0%		78%	4%	16%	1%	1%			1880	7	
1960	2,317	62%	38%	0%	0%	0%	0%	87%	2%	9%	0%	1%	0%		1527	6	
1961	1,412	77%	21%	2%	0%	0%		89%	5%	4%	0%	0%	0%		1597	6	
1962	850	91%	5%	3%	0%	0%	0%	76%	17%	4%	0%	1%	1%	0%	0%	1672	6
1963	382	93%	0%	2%	1%	3%		60%	29%	8%	1%	1%	1%	1%		1771	6
1964	291	91%	1%	4%	0%	3%	0%	66%	27%	4%		1%	1%			1761	6
1965	210	88%	2%	3%	0%	6%	1%	58%	34%	6%		1%	0%	1%		1787	7
1966	457	85%		3%		12%	0%	60%	35%	5%	0%					1861	6
1967	443	85%	1%	7%	0%	6%		66%	30%	3%	1%	0%				1831	7
1968	355	73%	1%	14%	1%	11%		52%	40%	6%		1%	0%			2046	7
1969	269	73%	1%	12%	1%	13%	0%	51%	36%	11%	0%	1%	1%			2114	7
1970	432	69%	0%	16%	1%	9%	0%	60%	32%	6%	0%	1%	1%			2061	7
1971	434	38%	0%	26%	27%	7%		60%	27%	3%	0%		8%	2%		1978	7
1972	202	24%		19%	51%	5%		52%	44%	3%	0%			0%		1825	7

APPENDIX A: Scottsdale - Average Home Characteristics Table																		
Single Family Homes	# rooms	parcels (sq ft)	garages			carports			both gar/carport	carport/gar enclosed	patios				additions			
			%	1 car	2 car	3+	%	1 car			2 car	3+	covered	slab only		both	none	
All Years:	6	10,949	31%	819	3450	113	60%	4451	3999	57	1%	9%	60%	11%	19%	10%	16%	
Year Built																		
1946																		
1947	9	7,928		0	0	0	100%	2	0	0			50%		50%			50%
1948	7	14,595	17%	3			67%	2				0%	50%	17%	33%			33%
1949	6	11,240	25%	2			75%	2				0%	75%		25%			25%
1950	5	11,772	6%	3	2		79%	54	7		3%	12%	51%	21%	16%	13%		12%
1951	5	12,082	10%	3	2		67%	23	8	2		22%	47%	6%	22%	24%		18%
1952	6	18,345	10%	3	2		65%	22	10	1	6%	20%	41%	24%	20%	16%		45%
1953	6	12,541	10%	2	9	2	62%	72	17			28%	48%	13%	22%	17%		28%
1954	5	9,801	9%	9	4		62%	76	17		1%	29%	49%	11%	15%	25%		19%
1955	6	10,206	9%	22	12	3	68%	256	36	4	1%	23%	58%	11%	20%	11%		25%
1956	6	6,391	11%	11	15	3	72%	154	38		0%	17%	60%	9%	17%	14%		18%
1957	6	6,578	9%	33	58	7	80%	653	188	5	2%	9%	59%	7%	27%	7%		14%
1958	6	8,790	11%	41	142	5	79%	870	517	9	1%	9%	61%	12%	18%	10%		16%
1959	7	14,259	19%	126	247	4	72%	613	809	7	1%	8%	63%	10%	20%	6%		16%
1960	6	8,191	18%	171	240	7	73%	950	734		1%	8%	57%	12%	18%	13%		14%
1961	6	8,999	42%	208	383	5	48%	339	337	4	1%	8%	60%	12%	16%	12%		17%
1962	6	10,796	64%	139	402	7	28%	43	194	2	1%	7%	53%	19%	20%	8%		16%
1963	6	15,049	31%	8	106	6	58%	56	163	3	1%	9%	59%	12%	22%	8%		18%
1964	6	13,283	39%	6	103	5	55%	51	109		1%	4%	59%	10%	26%	4%		15%
1965	6	14,719	44%	3	88	2	50%	18	87		1%	5%	56%	14%	25%	5%		18%
1966	6	15,048	53%	5	243	4	40%	26	155	4	1%	6%	60%	11%	24%	5%		15%
1967	6	12,457	46%	9	190	5	48%	56	156	1	1%	5%	67%	11%	18%	4%		15%
1968	7	15,376	57%	2	193	8	39%	45	93	1	1%	3%	72%	14%	15%	7%		15%
1969	7	17,362	63%	3	161	6	30%	15	62	3	3%	4%	60%	10%	26%	4%		19%
1970	7	17,195	73%	6	304	6	22%	25	69	2	0%	4%	65%	12%	18%	5%		12%
1971	6	17,204	64%	3	260	15	29%	16	106	2	2%	6%	59%	9%	16%	17%		17%
1972	6	15,212	64%	1	125	4	21%	14	26	2	1%	14%	46%	16%	15%	23%		14%

APPENDIX B: Scottsdale - Postwar (1946-1973) Subdivision Characteristics Table

Subdivision(s)	# plats	# houses		constr yr (*period thru 1973)			parcel size (avg)	walls						roof										
		<1974	1974+	earliest	avg*	max*		block	stucco	slump	brick	wood	other	asphalt	built up	asbestos	wood	cement tile	clay tile	roll	other			
52 Papago parkway	6	563	1	1950	1959	1971	7,200	99%	0%	0%						98%	0%	0%	1%					
53 Paradise meadows	1	29	1	1957	1958	1959	16,000	97%	3%							93%			7%					
54 Paradise valley farms	1	47	11	1968	1970	1973	49,000	17%	43%	30%	6%	11%				2%	62%		30%	4%	2%			
55 Park mcdowell	2	92	0	1950	1952	1973	8,100	99%				1%				27%	60%	2%	1%			10%		
56 Park scottsdale 14,15,16,17	4	255	0	1970	1971	1972	8,300	62%	6%	0%		31%				98%	2%		0%					
57 Park scottsdale	14	1455	0	1960	1964	1972	8,100	87%	2%	1%	8%	1%				85%	13%	0%	2%	0%	0%			
58 Parkcrest	1	206	0	1960	1965	1969	7,800	93%	5%	1%	0%					50%	50%				0%			
59 Peaceful valley	2	137	0	1952	1956	1959	7,400	94%	1%		4%					46%		1%	48%	4%				1%
60 Pima meadows	4	154	0	1959	1972	1973	5,000		1%			99%	1%			99%	1%							
61 Pointe scottsdale	1	215	0	1961	1966	1972	8,200	99%	1%							99%	3%	1%	1%					
62 Rancho vista	1	27	0	1953	1956	1958	11,700	96%	4%							74%	7%	4%	11%	4%				
63 Ranchos chiquito	1	13	0	1958	1963	1973	51,900	77%		8%		8%	8%			8%	38%	8%	38%			8%		
64 Redlands	1	50	0	1956	1957	1959	8,100	100%								100%								
65 Ride n rock ranchos	1	7	2	1953	1961	1972	76,900	57%	29%				14%			14%	14%		71%					
66 Sands east	2	142	0	1966	1968	1972	10,900	53%	12%	35%						50%	40%		7%	3%				
67 Schaffner estates	1	9	1	1955	1962	1971	42,400	78%	11%		11%					11%	78%		11%					
68 Scottsdale country acres	3	276	3	1958	1961	1969	9,000	98%	1%			0%				97%	2%		1%					
69 Scottsdale estates amended, 2,3	3	328	0	1950	1957	1958	7,100	4%			96%					98%	1%	1%	1%					
70 Scottsdale estates 5,6,7,8,9	5	877	1	1948	1958	1969	6,800	0%	2%		97%		0%			57%	0%		41%	1%	0%			
71 Scottsdale estates 4	1	124	0	1956	1957	1959	7,300	1%			99%					99%						1%		
72 Scottsdale estates 14 & 15	2	279	0	1958	1960	1961	7,300	1%	2%		97%					65%			34%	0%				
73 Scottsdale estates 10,11,12,16	4	892	3	1958	1960	1969	7,600	2%	1%		98%	0%	0%			85%			14%	1%	0%			
74 Scottsdale highlands	8	241	5	1956	1962	1970	9,300	88%	6%	2%	1%	0%	3%			88%	7%		5%			0%		
75 Scottsdale meadows	3	116	0	1954	1958	1960	7,700	99%	1%							100%								
76 Scottsdale terrace	2	148	0	1955	1958	1967	7,300	30%	2%		68%					79%	18%		2%			1%		
77 Scottsdale village	1	66	0	1953	1954	1973	7,500	97%		2%	2%					95%	3%	2%						
78 Shea paradise	1	7	0	1963	1964	1966	36,000	57%		29%			14%			57%	43%							
79 Sherwood estates	2	72	0	1959	1961	1964	12,000	94%	4%				1%			46%	24%	3%	14%	8%	6%			
80 Sherwood heights	3	115	0	1955	1959	1965	23,000	93%			3%		4%			37%	18%	2%	23%	17%	3%			
81 Southwest village	3	290	1	1954	1956	1963	7,200	99%	1%							94%	2%	0%	0%	3%	0%			
82 Su casa	1	14	2	1972	1973	1973	40,400		71%	29%						100%								
83 Sundown estates	1	13	3	1971	1972	1973	39,100		77%	23%						8%	92%							
84 Sundown gardens	2	12	7	1971	1972	1973	37,000		92%	8%							92%					8%		
85 Sundown ranch acres	1	27	7	1957	1962	1972	43,800	81%	7%	11%						15%	67%		19%					
86 Sundown ranch estates	1	69	6	1950	1962	1973	45,000	55%	13%	22%		6%	3%			3%	57%	4%	28%	7%	1%			
87 Sundown ranchos	2	91	18	1959	1969	1973	44,200	34%	32%	29%	1%	4%				14%	69%	1%	7%	1%	3%	4%		
88 Sundown vista	1	15	0	1970	1971	1973	46,800	13%	73%		7%	7%				20%	67%		7%	7%				
89 Tierra feliz north	1	76	1	1971	1973	1973	35,700	96%	4%							1%	99%							
90 Town and country scottsdale	1	62	0	1952	1959	1960	7,500	100%								29%	71%							
91 Trail east	1	5	4	1972	1972	1972	9,100	60%	13%								100%							
92 Trail west	5	160	0	1951	1963	1972	9,300	94%	3%	2%			1%			73%	25%					1%	1%	
93 Verde villa	1	11	0	1958	1959	1960	8,400	100%								100%								
94 Villa arcadia	1	14	1	1964	1965	1969	19,100	64%	21%	14%						21%	14%		29%	14%	21%			
95 Villa coronado	1	30	0	1971	1971	1971	7,300		100%													100%		
96 Village grove 2,3,4,5,6	6	254	0	1947	1958	1959	8,500	100%								99%			0%	0%	0%			
97 Village grove 7,8,9,10,11,12,13,14,15	9	443	0	1957	1960	1965	8,700	100%								98%	1%	0%	0%	0%				
98 Village grove 17,17A,18,19,20	5	259	1	1960	1965	1969	9,900	98%	1%	1%		0%				85%	8%	1%	6%	1%				
99 Vista bonita	3	76	2	1956	1961	1968	18,500	8%	7%	5%	1%					47%	14%	5%	28%	3%	3%			
100 Visa del camino	1	53	0	1955	1972	1971	7,300				100%					2%	96%	2%						
101 Western villa	2	113	0	1955	1957	1959	6,700	99%	1%							88%	12%		1%					
102 Whitwood	2	43	1	1954	1957	1959	15,500	100%								35%		51%	7%	7%				
103 Zel estates	1	34	0	1960	1962	1969	10,500	100%								41%	38%		15%	6%				

APPENDIX B: Scottsdale - Postwar (1946-1973) Subdivision Characteristics Table

Subdivision(s)	# bath fixtures	patios				avg house size	# rooms	garage				carport				garage/carport		additions %
		covered	slab	both	none			%	1 car	2 car	3+	%	1 car	2 car	3+	none	both	
1 Arcadia Square	9	31%		69%		2417	7	46%	31%	15%		46%	31%	15%		8%	38%	
2 Arcadia vista	8	53%	13%	33%		2252	7	33%		27%	7%	53%	7%	40%	7%	7%	27%	
3 Bob-o-link	7	74%	10%	13%	3%	2289	6	56%		54%	3%	33%	3%	28%	3%	8%	23%	
4 Caballo ranchos	7	56%	20%	20%	4%	2190	7	80%		68%	12%		8%		8%	4%	32%	
5 Camelback club estates	8	53%	16%	32%		2681	7	53%		47%	5%	47%		47%			37%	
6 Camelback park estates	5	31%	31%	19%	19%	1311	5	8%	5%	3%		60%	46%	14%		33%	45%	
7 Camelvista	7	46%	8%	41%	5%	2053	6	62%		59%	3%	30%		30%		5%	22%	
8 Casa del oeste	7	85%	5%	10%		2254	7	40%		35%	5%	50%	5%	45%		5%	20%	
9 Casa del oeste #2	7	75%	5%	15%	5%	2482	7	55%		50%	5%	40%		30%	10%	5%	35%	
10 Cavalier vista 3 & 4	6	63%	8%	25%	5%	1584	6	8%	2%	5%		82%	21%	61%		11%	17%	
11 Cavalier vista 1 & 2	5	64%	11%	11%	14%	1234	5	8%	7%	1%		75%	74%		1%	18%	22%	
12 Char mel terrace	6	75%		17%	8%	1894	6	25%		25%		75%	17%	58%			25%	
13 Coronado villa	6	50%	20%	30%		2198	6	60%	10%	40%	10%	40%	10%	30%			20%	
14 Corvalian estates 1	9	53%		40%	7%	2634	8	60%		47%	13%	27%		27%			47%	
15 Corvalian estates 2 & 3	8	93%		5%	2%	2458	7	72%		68%	4%	26%		26%		2%	14%	
16 Country club plaza	6	71%	7%	21%		1647	6	7%		7%		93%		93%			7%	
17 Country club vista	7	37%	11%	53%		2178	6	5%		5%		95%		95%			11%	
18 Country estates	6	53%	10%	35%	2%	1541	5	8%	2%	7%		83%	18%	65%		8%	7%	
19 Cox heights	6	51%	19%	25%	5%	1485	6	86%	54%	31%	0%	4%	2%	1%		10%	11%	
20 Cranbrooke manor	3	52%	6%	9%	33%	1091	5	6%	5%	1%		57%	55%	2%		37%	16%	
21 Desert Estates	7	56%	7%	36%	1%	2110	6	37%		34%	3%	49%	2%	45%	0%	11%	26%	
22 Desert hills 3	7	83%		17%		2456	7	58%		58%		33%		33%		8%	25%	
23 Desert hills 1 & 2	7	58%	10%	33%		2164	7	13%	3%	10%		75%	73%	3%		10%	20%	
24 Desert star acres	8	50%	10%	40%		2259	7	60%		50%	10%	30%		30%		10%	10%	
25 El dorado hermosa	6	71%		26%	3%	1560	5	97%		97%		3%		3%			14%	
26 Fairway park	6	43%	9%	43%	5%	2031	6	38%		34%	4%	54%	9%	41%	4%	4%	14%	
27 Gibraltar manor	7	72%	8%	20%		1777	6	20%	4%	12%	4%	68%	32%	32%	4%	12%	32%	
28 Golomb estates	10	75%		25%		2845	8	25%		25%		63%		63%		13%	25%	
29 Haciendas monte vista	8	83%		17%		2556	7	67%		67%		33%		33%				
30 Heritage east	8	35%	6%	59%	3%	2239	7	99%		98%	1%					1%	6%	
31 Hidden village	7	59%	11%	26%	4%	2114	6	31%		28%	3%	64%	1%	61%	3%	4%	31%	
32 Hidden village16a	7	33%	33%	33%		2193	7	2%		22%		78%		78%		2%	22%	
33 Hy-view	6	53%	11%	28%	8%	1599	6	6%	0%	5%		88%	10%	78%		6%	16%	
34 Indian bend ranchos	9	54%	2%	44%		2961	8	68%		56%	12%	22%		20%	2%	2%	17%	
35 Indian meadows	6	50%		42%	8%	1857	6	50%		50%		50%		50%			17%	
36 Indian shadows	6	85%	6%	9%		1875	6	68%		68%		24%	3%	21%		9%	6%	
37 Ingleside inn tract 3	7	75%		13%	13%	2442	8	38%	13%	25%		63%		50%	13%		25%	
38 Inmar terrace	6	71%	1%	13%	14%	1392	5	5%	5%	1%		77%	68%	8%		17%	22%	
39 Juanita y olmo frontier place	5	63%	6%	22%	8%	1491	5	8%	3%	5%		78%	56%	22%		13%	8%	
40 Lombardi estates	10	36%	9%	45%	9%	3069	8	48%		45%	3%	39%	3%	24%	12%		39%	
41 Lor villa estates	7	77%		23%		2424	7	46%	8%	31%	8%	46%		46%			23%	
42 Mcdowell parkway	6	64%	5%	9%	22%	1294	5	1%	1%			88%	88%			9%	9%	
43 Melrose meadows	6	48%	13%	34%	5%	1658	5	11%		0%		78%	22%	6%	1%	5%	7%	
44 Melrose village	6	74%	2%	23%	2%	1695	6	15%	2%	13%	1%	77%	2%	74%	1%		17%	
45 Mereway manor	6	51%	17%	17%	14%	1267	5	6%	4%	3%		83%	72%	11%		11%	13%	
46 New papago parkway	6	57%	10%	10%	24%	1376	5	5%	3%	2%	0%	86%	65%	20%	0%	9%	13%	
47 North scottsdale estates	7	50%	30%	20%		2123	7	30%		20%	10%	30%		30%		40%	70%	
48 North scottsdale estates 2 & 3	6	83%		16%	6%	2153	7	57%		46%	11%	23%		20%	3%	20%	17%	
49 Oak park	6	60%	8%	13%	19%	1271	5	30%	1%	30%		64%	2%	62%		3%	16%	
50 Oak ridge	6	37%	26%	11%	26%	1254	6	7%	7%			67%	67%			15%	22%	
51 Papago paradise	6	57%	7%	21%	15%	1465	5	4%	1%	3%		81%	69%	12%		15%	17%	

APPENDIX B: Scottsdale - Postwar (1946-1973) Subdivision Characteristics Table

Subdivision(s)	# bath fixtures	patios				avg house size	# rooms	garage				carport				garage/carport		additions %
		covered	slab	both	none			% 1 car	2 car	3+	% 1 car	2 car	3+	none	both			
52 Papago parkway	6	77%	5%	12%	6%	1555	6	4%	2%	2%	90%	61%	28%	0%	5%	1%	14%	
53 Paradise meadows	6	31%	21%	45%	3%	1972	6	17%		17%	76%	10%	62%	3%	3%	3%	17%	
54 Paradise valley farms	11	79%	2%	19%		3288	9	83%	4%	60%	19%	11%	11%			6%	36%	
55 Park mcdowell	4	36%	23%	14%	27%	1155	5	4%	2%	2%	74%	70%	4%		22%		12%	
56 Park scottsdale 14,15,16,17	6	55%	17%	4%	24%	1775	6	73%		73%	21%	4%	17%		5%	1%	14%	
57 Park scottsdale	6	57%	20%	15%	9%	1669	6	84%	9%	75%	0%	10%	5%	4%		6%	0%	12%
58 Parkcrest	6	59%	20%	13%	8%	1734	6	31%	1%	30%		64%	16%	49%		5%		11%
59 Peaceful valley	6	60%	17%	13%	10%	1469	6	5%	4%	1%		58%	50%	7%		36%	1%	22%
60 Pima meadows	6	73%	10%	8%	8%	1460	5	100%	1%	99%								3%
61 Pointe scottsdale	6	67%	12%	17%	5%	1603	6	16%		16%	0%	77%	5%	73%		6%	1%	15%
62 Rancho vista	6	37%	7%	52%	4%	1805	6	19%		19%		59%	26%	30%	4%	22%		19%
63 Ranchos chiquito	8	38%		54%	8%	2658	7	31%		31%		31%		23%	8%	38%		46%
64 Redlands	6	50%	6%	38%	6%	1512	6	6%	4%	2%		84%	56%	28%		10%		18%
65 Ride n rock ranchos	12	57%		43%		3495	8	43%		29%	14%	43%		43%		14%		57%
66 Sands east	7	75%	5%	15%	5%	2246	7	93%		94%	1%	4%		4%		1%		8%
67 Schaffner estates	8	67%		33%		2643	7	78%		56%	22%	22%		22%				22%
68 Scottsdale country acres	6	65%	6%	23%	6%	1833	6	25%	4%	21%	1%	61%	13%	47%	0%	12%	2%	18%
69 Scottsdale estates amended, 2,3	6	63%	2%	32%	2%	1567	6	2%	2%	1%		89%	86%	3%	0%	7%	2%	8%
70 Scottsdale estates 5,6,7,8,9	6	57%	22%	11%	10%	1532	6	9%	5%	4%	0%	79%	58%	20%	0%	12%	0%	20%
71 Scottsdale estates 4	6	70%	2%	27%	1%	1564	6	2%	1%	1%		88%	86%	2%		7%	3%	5%
72 Scottsdale estates 14 & 15	6	47%	28%	13%	11%	1501	6	13%	6%	6%	0%	76%	51%	24%		10%	1%	19%
73 Scottsdale estates 10,11,12,16	6	59%	9%	16%	15%	1463	6	9%	4%	5%		81%	54%	27%		10%	1%	15%
74 Scottsdale highlands	6	60%	9%	22%	9%	1691	6	71%	5%	65%	1%	22%	8%	13%		7%	1%	22%
75 Scottsdale meadows	6	70%	10%	13%	7%	1683	6	10%	3%	8%		77%	22%	55%		10%	3%	21%
76 Scottsdale terrace	6	57%	7%	20%	17%	1494	6	6%	5%	1%		85%	77%	8%		8%	1%	24%
77 Scottsdale village	6	53%	14%	21%	12%	1354	5	5%	5%			73%	68%	5%		23%		14%
78 Shea paradise	6	43%	29%	29%		1816	6					43%	14%	29%		29%	29%	43%
79 Sherwood estates	6	44%	15%	38%	3%	1898	6	22%	3%	19%		72%	8%	64%		3%	3%	29%
80 Sherwood heights	7	40%	14%	44%	2%	2090	6	32%		28%	4%	59%	1%	57%	1%	4%	4%	26%
81 Southwest village	6	68%	7%	17%	8%	1352	6	9%	6%	3%		72%	52%	20%		18%	1%	27%
82 Su casa	10	43%	7%	50%		2993	7	71%		71%		21%		21%			7%	21%
83 Sundown estates	8	54%	8%	31%	8%	2731	8	54%		46%	8%	31%		31%		8%	8%	38%
84 Sundown gardens	8	42%		58%		2541	7	67%		42%	25%	33%		25%	8%			33%
85 Sundown ranch acres	7	41%	22%	30%	7%	2120	7	22%	4%	15%	4%	74%	4%	67%	4%	4%		22%
86 Sundown ranch estates	9	49%	10%	41%		2791	7	51%		38%	13%	38%		26%	12%	6%	6%	41%
87 Sundown ranchos	7	76%	3%	19%	2%	2319	7	46%	3%	35%	8%	43%		41%	2%	8%	3%	27%
88 Sundown vista	6	100%				2122	7	47%		47%		41%	13%	33%		7%		7%
89 Tierra feliz north	9	87%		12%	1%	2660	8	61%		47%	8%	39%		37%	3%	1%	4%	16%
90 Town and country scottsdale	6	48%	8%	39%	5%	1686	6					84%	47%	34%	3%	16%		13%
91 Trail east	8		20%	80%		2180	7	60%		60%		40%		40%				
92 Trail west	6	71%	6%	18%	5%	1769	6	12%	1%	11%		82%	14%	68%		6%		21%
93 Verde villa	6	73%		18%	9%	1315	6					64%	55%	9%		36%		27%
94 Villa arcadia	9	50%	14%	36%		2831	8	79%		79%		14%		14%			7%	50%
95 Villa coronado	6	60%		40%		2067	7	93%		93%						3%	3%	7%
96 Village grove 2,3,4,5,6	6	59%	12%	20%	9%	1851	6	11%	0%	10%		84%	32%	52%	0%	3%	2%	10%
97 Village grove 7,8,9,10,11,12,13,14,15	6	70%	1%	26%	3%	1753	6	8%	0%	8%		90%	23%	67%	0%		1%	7%
98 Village grove 17,17A,18,19,20	6	73%	5%	19%	3%	1949	6	32%	2%	30%	0%	66%	4%	62%		2%	0%	13%
99 Vista bonita	7	68%	4%	28%		2211	7	26%		26%		71%	1%	70%		3%		26%
Visa del camino	5	9%	4%		87%	1014	6					40%	23%	17%		60%		13%
100 Western villa	6	57%	12%	15%	16%	1462	5	5%	4%	1%		88%	71%	18%		6%		26%
101 Whitwood	7	56%	2%	42%		1994	6	30%	2%	28%		65%	5%	60%		5%		23%
102 Zel estates	8	88%	3%	6%	3%	1879	6	15%		15%		85%	3%	82%				9%