

SOCIAL ENGINEERING THROUGH SPATIAL ENGINEERING: SPECIAL PURPOSE
ROADS FOR THE SAFETY, HEALTH, AND WELL-BEING OF THE COMMUNITY IN
NEW COMPANY TOWN PLANNING

by

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A THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Science
in the Department of Geography
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2014

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ABSTRACT

In the early twentieth century, American industrialists enlisted professional planners, architects, landscape architects, and engineers to design state of the art company towns as part of concerted efforts to improve the living conditions of working class employees. With their attractive housing, abundant green space, recreational facilities, and modern schools and civic buildings, these “new” company towns radically departed from the filthy, monotonous, and oppressive environments of earlier industrial villages.

According to geographer Andrew Herod, the built environments of “new” company towns reflect the grand designs of their builders. “Company towns are then, an attempt to put “social thought in three dimensions. They are a concrete example of what I am here calling “spatial engineering”—the deliberate manipulation of the landscape—for purposes of social engineering” (Herod 2011, 21). Pursuant to this inquiry, this study examines the history and spatial arrangements of transportation networks and residential sites in “new” company towns through an extensive literature review and two case studies, Bayview and Chickasaw, Alabama. The literature review and two case studies demonstrate the intentional engineering of roadways for the safety, health, and well-being of “new” company town residents.

DEDICATION

This thesis is dedicated to those who made public education a right of the people.

ACKNOWLEDGEMENTS

I would like to thank the institutions and people who made this thesis possible in order of appearance. Dr. Lynne Adrian, Chair of the University of Alabama, American Studies Department, taught me the importance of persistence in research back in 1989 when I was working as one of her research assistants. I applied this lesson to the study of the Chickasaw Shipyard Village in 2002. I followed a line of inquiry to its conclusion and began the next one, and so on, and so on. In the process of researching Chickasaw, I collected boxes of source materials. This is not to say that I am solely responsible for all of the research. Chickasaw Historical Society President, Teresa Goolsby, graciously donated a binder of documents to the project. Along with maps, measured drawings of houses, and general historical contexts, the binder contained several curious statements about Chickasaw's "unique sidewalk streets." Thus, began my interest in and subsequent study of Chickasaw's pedestrian streets.

This thesis would not have been possible without the due diligence of cultural resources management conducted by the State of Alabama in 2002. Through a Memorandum of Agreement with the Alabama Historical Commission (AHC), the Alabama Department of Transportation (ALDOT) provided funding for a comprehensive historic resources survey of the Chickasaw Shipyard Village near Mobile, Alabama. ALDOT funding enabled me to document over 500 historic residences, community facilities, and shipyard structures, prepare mapping, and conduct intensive research. The study concluded with the preparation of a comprehensive report and a National Register of Historic Places (NRHP) nomination and listing for the Chickasaw Shipyard Village Historic District (Ford 2002; 2003). In 2012, the AHC awarded a grant to document

Bayview near Birmingham, Alabama. This grant culminated in the preparation of a comprehensive report (Ford 2012).

Dr. Jeffrey P. Richetto, the Chairperson of my thesis committee, deserves much praise for seeing a potential thesis in my ALDOT and AHC reports. He encouraged me to explore my interest in the origins of Chickasaw's pedestrian streets through a series of research papers in the Geography Department's urban planning courses. Thanks to Dr. Richetto, I had completed all of the preparatory work for a thesis when the time came to write it. Dr. Joe Weber and Dr. Seth Appiah-Opoku are also to be commended for their insight and encouragement as I made my way through the geography coursework. I am eternally grateful to the thesis committee for making the process of writing and reviewing my thesis relatively painless. My colleague, Tamela K. Wilson, offered helpful hints for formatting this report. Last but certainly not least, my wife, Tena Robinson Ford, answered numerous questions regarding style and substance. Her reward awaits her in Paris.

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CHAPTER 1: INTRODUCTION

In the first two decades of the twentieth century, the United States Steel Corporation (USS) developed a steel manufacturing process in Alabama under the aegis of its southern subsidiary, the Tennessee Coal, Iron and Railroad Company (TCI). USS transported both coal that was mined at Bayview, Docena, and Edgewater and ore deposits extracted at Ishkooda, Wenonah, Muscoda, Dolonah, and Wylam to its industrial plants located in Fairfield, Alabama where all the materials were used in the production of various steel products. Among the products produced were steel plates which USS transported to its shipyard in Chickasaw near Mobile, Alabama. The Chickasaw shipyard manufactured fourteen cargo vessels during World War I (Ford 2003, 85). Upon completion, Chickasaw's merchant vessels shipped USS steel, medicine, food, and clothing to worldwide destinations, including Rotterdam, Amsterdam, Antwerp, and Ghent between 1919 and 1922 (*Mobile Register* 1923). These efforts delivered more than four million tons of relief supplies to war-torn Europe.

In concert with its steel production, USS developed company towns adjacent to its extraction and manufacturing sites. USS company towns at Fairfield (1909), Edgewater (1910), Bayview (1911), Docena (1912), Westfield (1917), and Chickasaw (1919) featured commodious and picturesque cottages, sewer, water, and power utilities, parks, recreation facilities, schools, health institutions, and transportation infrastructure. Period journals, such as the Southern Pine Association's *Homes for Workmen: A Presentation of Leading Examples of Industrial Community Development* (1919) and *American City* (Miller 1913), praised USS's industrial villages as "model" communities.

Nearly a century later, Margaret Crawford, author and Professor of Architecture in Harvard University's Department of Urban Planning and Design identified Bayview, Chickasaw, Fairfield, and Westfield as examples of "new" company towns in *Building the Workingman's Paradise: The Design of American Company Towns* (1995, 237). In the history of industrial village planning, the "new" company town represents the culmination and synthesis of three important planning themes: (1) the corporate welfare movement; (2) the City Beautiful era; and (3) the Garden City idea, all of which flourished between 1913 and 1925 (Crawford 1995, 3). In the early twentieth century, a number of America's leading industries, including USS, adopted social reform measures as part of concerted efforts to improve the living conditions of its working class employees.

Scholars from various disciplines, including labor, urban, and architectural history, have and continue to study company towns, new and old. In his essay, "Social Engineering through Spatial Engineering: Company Towns and the Geographical Imagination," Andrew Herod declares:

Company towns are the product of their designers' hope that shaping the built environment in particular ways will allow them to further their political, economic, and cultural goals, whether these be exerting control over their labor force, ensuring the development of particular types of industrial relations, or, perhaps more altruistically, providing their workers with better housing than they might otherwise be able to secure. Company towns are then, an attempt to put "social thought in three dimensions," as Robert Fishman termed it. They are a concrete example of what I am here calling "spatial engineering"—the deliberate manipulation of the landscape—for purposes of social engineering (Herod 2011, 21).

Spatial Problem/Questions

Herod's "geographical imagination" leads to examining the role, if any, transportation networks played in shaping the built and social environments of USS's "new" company towns in Alabama. Several questions accompany this line of investigation: for example, did USS planners

arrange circulatory systems in their industrial villages so as to create benefits for both the company and residents? What design criteria shaped USS's transportation infrastructure? What was/were the physical form(s) of the "new" company town road networks? Do the networks of USS's towns share common structural characteristics? Lastly, are the configurations of networks dependent/independent of town settings and site plans?

Hypotheses

The aforementioned questions lead to the formulation of the following hypothesis: The transportation networks of USS's "new" company towns epitomize what geographers call the "socio-spatial dialectic." "The physicality of landscapes reflects the interests of those who construct them" (Herod 2011, 22). USS planners designed the circulatory networks of their industrial villages with a twofold interest in mind: (1) efficient movement of industrial, automobile, and pedestrian traffic to and through the industrial village; and (2) safety, health, and well-being of its employees.

Context/Subfield of Geography/Planning

It is within this context that the proposed study examines these questions that underlie the planning of the American company town. According to Margaret Crawford, author of *Building the Working Man's Paradise: The Design of American Company Towns*, "the American company town represents a distinctive urban form with a 150-year evolution spanning the transformation of company town planning from a vernacular building activity to a professional design task, undertaken by architects, landscape architects, and city planners" (1995, 1).

Comprehensive planning principles formed the basis of "new" company town developments. "New" company towns were designed as complete communities, including housing, schools, medical facilities, utilities, industry, shops, and green space (Crawford 1995,

200). Moreover, “new” company town planners employed various design mechanisms to “efface the connection between the living environment and its industrial origins” (Crawford 1995, 3); thereby creating a modern, twentieth-century urban landscape built on a substrate of nineteenth-century Garden City and City Beautiful concepts.

USS occupies an important place in the evolution of industrial village development. Not only the leading manufacturer of steel in the nation, USS was also considered to be one of the leading developers of industrial communities. In the early twentieth century, USS built company towns across the eastern half of the nation in such states as Minnesota, Pennsylvania, Kentucky, Indiana, Michigan, Ohio, Illinois, West Virginia, Kentucky, and Alabama. In 1906, USS envisioned Gary, Indiana as a model industrial community; however, Gary failed to realize its visionary promise due to the lack of professional oversight. USS corrected this short sight by hiring experienced developer Robert Jemison, Jr., landscape architect George H. Miller, and architect William Leslie Welton to design Fairfield (1909), a steel town near Birmingham, Alabama. Miller proclaimed USS’s first fully developed exercise in “new” company town development a success and that Fairfield would serve as a model by which other such towns would be judged (Miller 1913, 213-18). Following this success, USS built five additional “new” company towns: Bayview, Chickasaw, and Westfield, Alabama; Lynch, Kentucky; and Morgan Park, Minnesota.

Specifically, the proposed study focuses on Bayview and Chickasaw, Alabama. Survey reports exist for both Bayview (Ford 2012) and Chickasaw (Ford 2002); consequently, documentation is readily available and easily accessible. Built in 1911 and 1919, respectively, Bayview and Chickasaw coincide with the advent of automobile traffic and its rapid increase and widespread use in the 1920s. The company towns are the products of diverse geographies and

site plans. Bayview's Garden City plan, consisting of curvilinear and radial streets, adheres to the irregular terrain of the Greater Birmingham's Valley and Ridge geographical province while Chickasaw's modified grid plan is situated atop a relatively flat built-up platform of swampland in the Chickasabogue. Importantly, the differences in site plan and topography underscore the universal characteristics of the two road systems.

Data

The proposed study analyzes the structural configuration and role played by Bayview's and Chickasaw's transportation network. This analysis requires an understanding of network architecture, road width, function, and user demand. The data required for this investigation includes geographic representation in the form of mapping and photographs. Topographic, site plan, tax assessor, Sanborn, and Geographic Information Systems (GIS) maps provide needed information about road systems, including elevation, overall and individual configuration, width and length, connectivity, circulation, hierarchy, and collection and destination points. Aerial and field survey photographs also provide this information, as well as pictorial views of actual ground conditions, relationship of individual components to the setting as a whole, and three-dimensional perspectives of buildings, structures, vegetation, and terrain. Combined, both mapping and photographs enable a detailed and comprehensive examination of Bayview's and Chickasaw's circulatory system.

Literature Review

The body of literature on company towns is vast with contributions from many disciplines. Those who have written on the subject include "economists, geographers, political scientists, sociologists, labor and social historians, as well as architectural and landscape architectural historians and urban planners" (Crawford 1995, 4). Architects, landscape architects,

and urban planners, such as George H. Miller and John Nolen, who were responsible for creating some of the leading examples of “new” company towns, were among the first to publish articles on the subject in *American City*, *The Architectural Forum*, *Architectural Review*, *Landscape Architecture*, and *Scribner’s Magazine*. Southern Pine Association, a major supplier of lumber used in the construction of workman’s housing, produced a comprehensive compendium on the leading examples of industrial communities. USS dedicated much print to town building in bulletins from the 1910s through the 1920s.

Construction of “new” company towns hardly ended before researchers began scrutinizing them. In 1938, Arthur C. Comey and Max Wehrly conducted a comprehensive study of company towns. Comey and Wehrly prepared detailed case studies of 90 model towns, including USS’s Chickasaw, Fairfield, Lynch, Morgan Park, and Westfield (1939, 18). From their intensive surveys, Comey and Wehrly drew some general conclusions regarding the physical layout of planned industrial towns.

In the 1970s, scholars conceptualized the social intent of town planning. Robert Fishman, Professor of Architecture and Urban Planning at the University of Michigan, argued that the utopian communities of Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier represented “an attempt to put social thought in three dimensions” (1977, 7). Labor geographer Andrew Herod later applied Fishman’s ideas to the interpretation of model industrial communities.

Professor of Urban Design and Planning Theory at Harvard University, Margaret Crawford published an excellent text on this subject matter entitled, *Building the Working Man’s Paradise: The Design of American Company Towns* (1995). *Building the Working Man’s Paradise* develops a comprehensive and critical framework for understanding the evolution of

company town planning. Using this framework, Crawford's book delves into the "new" company towns designed by Grosvenor Atterbury, Bertram Goodhue, John Nolen, and Earle S. Draper.

Arnold R. Alanen published *Morgan Park: Duluth, U.S. Steel and the Forging of a Company Town* in 2008. *Morgan Park* examines the natural setting and site plan of the industrial town through the lens of Garden City aesthetics. Given that Morgan Park (1915) is a USS property built on the order of Fairfield, Alabama, Alanen's case study holds helpful information in decoding Bayview and Chickasaw.

In recent years, authors have written two seminal books on the subject of company towns. Published in 2010, *The Company Town: The Industrial Edens and Satanic Mills That Shaped the American Economy* investigates this phenomenon from the perspective of labor history. The author, Hardy Green, considers the influences corporate owners and employees exercised in shaping industrial environments such as Pullman, Illinois, Hershey, Pennsylvania, and Kohler, Wisconsin. "Green explores utopian ideals gone awry and the changes in labor/management tensions across geography, time, and increasing globalization..." (Bush 2011). Oliver Dinius and Angela Vergara co-edited *Company Towns in the Americas: Landscape, Power, and Working-Class Communities* (2011). This compilation takes the study to the international level, exploring the corporate towns in Canada, the United States, Chile, Argentina, Brazil, and Mexico. Building on Andrew Herod's initial essay in which he concludes that the designs of industrial towns reflect the ulterior motives of the capitalists who built them, the other essays explore the ways in which company town form and function enforced racial, gender, and economic control. In his contribution to *Company Towns in the Americas*, Christopher W. Post accepts the premise of architecture as a means of hegemony in "new" company towns; however, Post demonstrates that the "morphology and functional zonation" of Sunflower Village, Kansas, a federal company

town based on “new” company town design principles, “provided much more safety, mobility, and opportunities for family interactions” (Post 2011, 112).

This thesis diverges from the emphasis on the geography of oppression prevalent in contemporary labor studies. Rather than focusing on the intentions of the owners of the company towns, this thesis interprets the form and function of “new” company towns through the intentions of the planners, architects, landscape architects, and engineers who built them. Andrew Herod’s reluctant concession, “perhaps more altruistically, providing their workers with better housing,” belies the work done by George H. Miller, John Nolen, and their colleagues to improve living conditions for industrial workers. In other words, this thesis examines the manipulation of spatial arrangements for the benefit of the working class rather than the use of spatial constructs for the manipulation and exploitation of the masses.

The proposed thesis contains six chapters. The second chapter features a literature review with more in depth discussion of the above works and others pertinent to this study. Chapter 3 reviews methodology while Chapters 4 and 5 present and analyze the two case studies, Bayview and Chickasaw. The last section of the thesis summarizes the paper and presents the results of the analysis.

CHAPTER 2: LITERATURE REVIEW

Chapter 2 addresses the literature review. The literature review begins with an overview of Garden City principles which influenced “new” company town design. The literature review includes analysis of Letchworth, England. Letchworth is considered the world’s first Garden City. Much of the focus of the review is on Charles Mulford Robinson, John Nolen, and George H. Miller. These men not only founded urban planning in America, but also wrote extensively on the subject. Corporate promotions and federal government analysis form an essential part of the “new” company town literature cannon. The review concludes with Robert Fishman and Andrew Herod both of whom explored the intent of “new” company town planners. The literature suggests that “new’ company town planners built safety features into their transportation networks.

“New” company towns owe their origins to Garden City design principles. English “gentleman reformer,” Ebenezer Howard, coined the term “Garden City” in his seminal text *Garden Cities of To-morrow* (1902). Garden City design proposed the development of self-contained towns approximately 6,000 acres in size. Located in the countryside, garden cities featured a combination of residential, industrial, agricultural, and recreational zoning (Howard 1965, 20). The marriage of town and country, Howard believed, made for a new living and working environment that would alleviate the misery of those unfortunate enough to be imprisoned in city slums and wretched factory towns (Howard 1965, 22; Schaffer 1982, 17-9; and Garner 1984, 8).

Howard's Garden City site plan radically departed from the gridiron plan typically featured in English and American cities at the turn of the nineteenth century. "Most American cities laid out in the second half of the nineteenth century were platted in extensive grids. These gridiron plats would guide their future growth, many following the rectilinear land surveys called for by the Northwest Ordinance and the Homestead Act" (Garvin 1996, 253; Ames and McClelland 2002, 37). Grid plans are composed of intersecting streets set at right angles. Typically uniform in width, streets in this plan conduct through-traffic in commercial and residential districts. In contrast, Howard based his town plan on a circle (Figure 2-1) (Howard 1965, 22). Six boulevards, each 120 feet wide, extend from the central hub to the edge of the city like spokes in a wheel. Five avenues form concentric rings with First and Fifth Avenues serving as the outer and inner rings, respectively. Grand Avenue (Third) is 420 feet wide (Howard 1965, 24). In the model city, a public garden exists at the core. City Hall and its attendant municipal buildings surround the central garden. A central park encircles the municipal ring, which in turn is encircled by a central commercial district. Housing on Fifth Avenue forms the next ring. Schools and churches occupy the median of Grand Avenue, which also serves as a green belt. "On the outer ring of the town are factories, warehouses, dairies, markets, coal yards, timber yards, etc..." (Howard 1965, 25).

Built 34 miles north of London by architects, engineers, and planners Barry Parker and Raymond Unwin, Letchworth, England (1904) earned the distinction of being the first Garden City. Parker and Unwin did not superimpose Howard's circular city model on their rural site; rather, they "sought a subtle 'organic sense' of order suggested by the terrain. They took advantage of the positions of the hills, streams, an old Roman road, and even some of the larger trees to define the plan of the town" (Fishman 1977, 68). Parker and Unwin retained Howard's

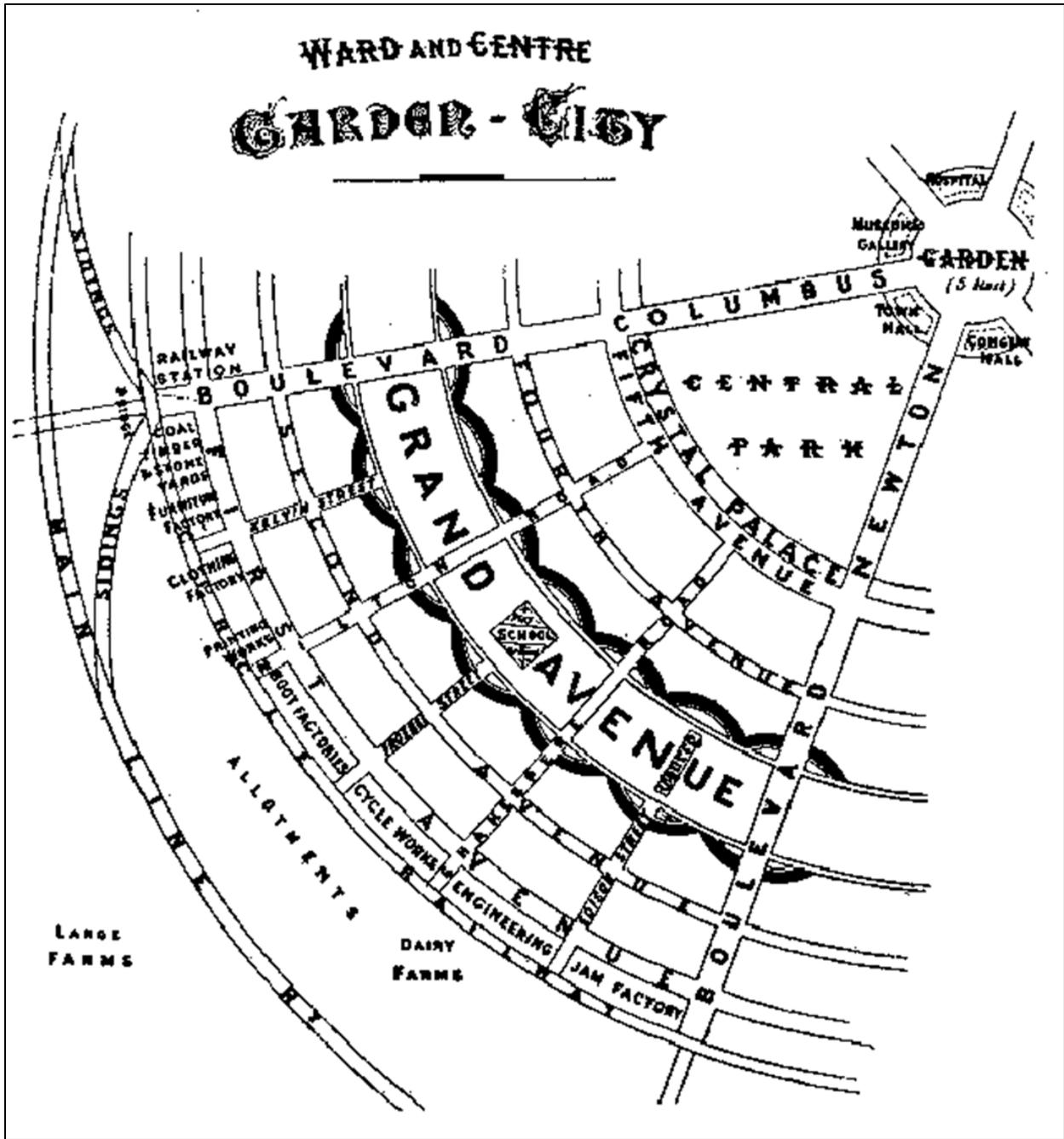


Figure 2-1. Diagram of Howard's conceptual model of the Garden City. *Source:* Diagram from Howard 1945, 53.

municipal nucleus as the core of Letchworth and built the town outward. The planners huddled the mercantile district on the north and east sides of the Town Hall. They located Letchworth's residences in informal areas (Fishman 1977, 68). Manufacturing, separated from residential areas by a railroad track, concentrated in an industrial park at the outskirts. Parker and Unwin retained the elements of Howard's Garden City plan, but allowed the features of the landscape to dictate their spatial arrangement.

Parker and Unwin based Letchworth's site plan on a two-tiered system of roads. This system consisted of main roads and residential roads. Unwin discoursed at length on the subject of transportation networks in his treatise, *Town Planning in Practice: An Introduction to the Art of Designing Cities and Suburbs*:

Roads [main] are primarily highways for traffic. They serve also a secondary purpose in affording sites for buildings. They should therefore be considered in relation to both these functions, and in the order of their relative importance. For the roads in a town to satisfy properly their primary function of highways, they must be so designed as to provide generally for easy access from any point in the town to any other. But they should provide, in addition, special facilities for the ebb and flow of particular tides of traffic, such as that from the outskirts to the centre and back again which daily takes place in most large cities, or that across the town from a residential district to a quarter occupied by works, factories, or other places of employment, or to important railway stations, harbours, and other centres of industry (1909, 235).

Letchworth's site plan utilized the existing Wilbury to Norton road, Icknield Way, and the Hitchin to Baldock road as major east-west routes (Miller 1989, 50). To these inter/intra-town roadways, Parker and Unwin added Norton Way. Norton functioned as the major north-south route. A web-like network of minor axes connected the major axes.

Unwin regarded main roads as unsuitable environments for housing:

The character of modern traffic, particularly the present character of motor traffic, has rendered frontage to the main road anything but desirable for residence; the dust, the noise, the smell are all objectionable features; and though at first sight it may seem extravagant not to make use of the main frontage, it would not be found so in practice, the subsidiary roads costing comparatively little (Unwin 1909, 317).

Unwin recommended siting houses on small subsidiary roads, such as cul-de-sacs and courtyards. Both site plans group a small number of residences on three sides of a central open area. In the cul-de-sac, houses front a narrow road whereas in the courtyard houses face a green, a formal court, or athletic field. The small spaces emphasize semi-enclosure, intimacy, beauty, and asylum from the ills of modern life (Unwin 1909, 354, 357, 365, 367-68). Unwin and Parker based many of Letchworth's informal housing areas on these two site plans (Fishman 1977, 74; Miller 1989, 71; and Crawford 1995, 73). "American planners soon familiarized themselves with plans and photographs of Letchworth that appeared in various professional publications (Alanen 2007, 9).

Charles Mulford Robinson was at the forefront of urban planning in American. He published several texts on the subject, including *The Improvement of Towns and Cities* (1901), at the turn of the nineteenth century. Robinson introduced studies in urban design to the University of Illinois at Urbana-Champaign while serving as a consultant for Detroit, Colorado Springs, Denver, Honolulu, Oakland, Des Moines, Dubuque, Ft. Wayne, Sacramento, Jamestown, N.Y., Ridgewood, Pittsburgh, San Jose, Los Angeles, Santa Barbara, and Binghamton (Reps n.d.). The pioneering planner accepted an invitation from Harvard University to conduct post-graduate work in city planning. Robinson immersed himself in American and European case studies, "some thirty towns and cities from the Atlantic Coast to the mid-Pacific" (Robinson 1911, vi). He familiarized himself with the planning lessons of Letchworth and Unwin. Robinson's post-graduate research resulted in a paper presentation at an international planning conference in London and the publication of *The Width and Arrangement of Streets: A Study in Town Planning* (Robinson 1911).

Robinson and Unwin were of like mind regarding the overall form of a street plan and the individual constructs of streets. The two planners argued against uniformity and geometric rigidity. They especially disliked the gridiron plan. Robinson clearly opposed the grid in *The Width and Arrangement of Streets*: “To require that the gridiron street plan, which is possibly characteristic of the nucleus of the town shall ‘spread like an eruption over hill and valley, regardless of gradient, site, or of strategic lines of communication, oblivious of monotony and blind to topographical opportunity,’ may be to blast the chance of suburban appropriateness and beauty” (1911, 13-4). Both planners preferred to observe a landscape’s natural features in designing an individual site plan.

Following Unwin’s street planning principles, Robinson recommended the division of a street plan into two types of streets:

Taking now, the social point of view, and observing the change which has recently come over city life, we may note that in no one feature does a modern city differ more radically from its prototype than in the daily ebb and flow, inward and outward, of its tide of travel. That circumstance makes upon the street plan a demand for a strictly two-fold service—the one for traffic and the one for quiet residence—with an urgency unknown before. It offers the opportunity, and even the obligation, to create two distinct kinds of streets that shall serve in the best possible way these diverse needs (Robinson 1911, 9).

Robinson rationalized that function, i.e., carrying through traffic and not carrying through traffic, led to this two-fold street plan division. According to Robinson, the function of traffic streets was to facilitate rapidity of movement and shortening of distance between the inner city and outer zones. Residential streets offered a refuge by excluding all through traffic of avenues, boulevards, and main highways. In order to maintain the “cozy and domestic character” of residential streets, Robinson advised the use of design elements, such as indirection, heavy grades, or a break in continuity, to exclude through movement (Robinson 1911, 10).

Letchworth's cul-de-sacs and courtyards represent two restrictive site plans. The cul-de-sacs are short and narrow and have an outlet at one end and a dead end at the other. The relatively tight confines of the cul-de-sacs limit their use to local residents. Letchworth's courtyards restrict vehicular movement even more than cul-de-sacs. The courts do not have interior roads, making the frontage of surrounding dwellings accessible only by foot. Limited vehicular access is relegated to service alleys located at the rear of the housing units. The spatial arrangement of Letchworth's courts render motor traffic inconspicuous.

In *The Width and Arrangement of Streets*, Robinson proposed a variation on Letchworth's courtyards:

If we imagine houses fronting on a street that had been narrowed to a footpath, as they well might when the distance is not so great as to make such platting inadvisable, there should be a service road at the rear. This, of, course, would be narrow and inexpensively developed...The service roads would be needed in case of fire, sickness, building operations, or for the delivery of heavy articles—as household goods and coal. They would serve to carry some of the public utilities, for which footpaths might not allow sufficient space. But the service roads, at worst, would not be conspicuous.

By these means, then, might we not create, very simply and practically, a *rus in urbe* of a most serviceable kind—even a Garden city...Among villas with considerable grounds on sites of picturesque and irregular topography, the people surely would thus be served as well, at a lower cost, and the region rendered more parklike and attractive” (Robinson 1911, 126).

Robinson theorized the creation of an ideal environment, “country in the city,” through the reordering of the standard street and residential site plan.

George H. Miller was more of a practitioner than a theorist. A well-known landscape architect headquartered in Boston, Miller designed industrial towns in Pennsylvania, Ohio, and Indiana (White 1989, 16). Developer Robert Jemison recruited Miller to plan several projects in Alabama. In 1911, Miller, Jemison, and a team of landscape architects, architects, and engineers, planned the development of the Redmont Park neighborhood in Birmingham. A year later, Miller laid out a model industrial town, Kaulton, in Tuscaloosa for lumber baron John Kaul (Reps 1965,

430). Miller's plans for Fairfield, a USS manufacturing plant near Birmingham, set new standards for company towns (Alanen 2007, 9; Green 2010, 55). "Miller's design was grand and intricate: a rectilinear, fan-shaped and curvilinear systems of streets, avenues and parks, shaped by existing roads and the topography of the land" (White 1989, 16).

In an *American City* article entitled, "Fairfield, A Town with a Purpose: An Industrial Community Planned to Increase Efficiency of Labor by Promoting Health, Comfort and a Wholesome Civic Spirit," the Boston landscape architect expounded on the qualities that established Fairfield as a paradigm in town design:

The physical town scheme has proven a good demonstration of city planning. It provides different kinds of thoroughfares and secondary streets, designed for their different specific uses and permitting of expansion; it provides public and semi-public buildings, and it regulates the character of development on private lands, all in one scheme which meets its purpose and takes advantage of existing conditions (Miller 1913, 213-14).

Miller created a hierarchical street network for Fairfield based on function not volume (Figure 2-2). The 140 feet wide main through-traffic boulevard conducts all-purpose traffic into and out of the town. This thoroughfare narrows to a 100 feet wide, primary business street and an 80 feet wide, secondary business street. At the next level, the network constricts to 60 feet and 50 feet wide residential ways. The actual roadways are quite narrow owing to "wide planting spaces" (Miller 1913, 213-14). The benefit of such a network is the segregation of traffic types. Through the gradually narrowing street system, traffic is funneled to its intended destination and away from inappropriate areas. Tight and curvilinear streets prevent the intrusion of wide loads such as delivery trucks and industrial vehicles in residential areas.

Equal parts designer and writer, John Nolen made a serious mark in the field of town planning. "Nolen's office produced more than twenty-five company town plans ranging from New England textile villages to Arizona copper camps" (Crawford 1995, 152). Nolen kept

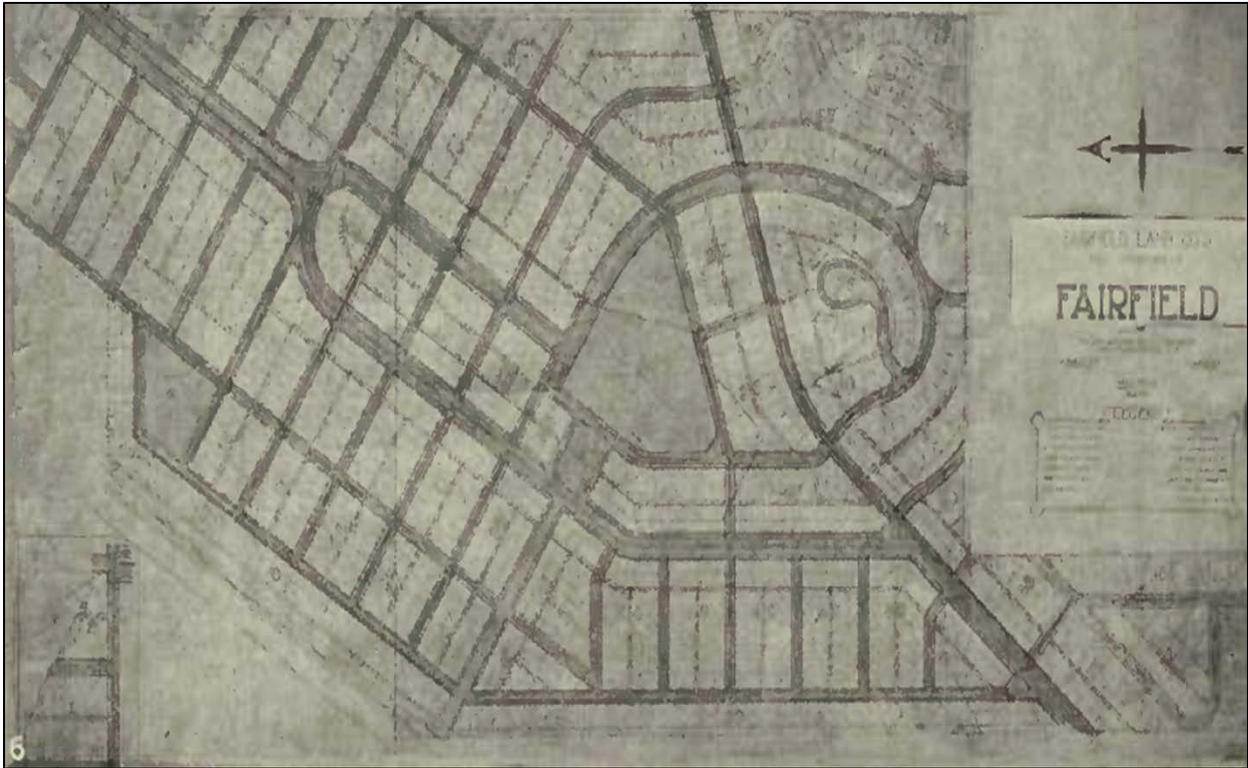


Figure 2-2. Fairfield site plan. *Source:* Southern Pine Association 1919.

abreast of the latest developments in town planning, regularly attending conferences and communicating with leading professionals, including Charles Mulford Robinson, Frederick Law Olmstead, Jr., Grosvenor Atterbury, Ebenezer Howard, and Raymond Unwin (Crawford 1995, 153). His thoughts on the topic frequently appeared in the leading planning journals among them *Landscape Architect*, *American Architect*, *Engineering News Record*, *City Planning*, and *Survey* (Crawford 1995, 153).

World War I created a critical three-fold need for industrial output, skilled labor required to produce it, and housing. “The United States Chamber of Commerce has stated that at the present time the proper housing of workmen is the most necessary thing to be done to win the war” (Nolen 1918, 97). Thinking the issue of housing to be part of the broader issue of community planning, Nolen established a set of principles for the development of proper

industrial town or villages. Published in *The Architectural Forum*, “The Essential Principles of Industrial Village Development” commented on the need for forethought in street design:

The importance of the street rests in the fact that it is the channel of all ordinary means of public circulation and public service...that only through the opportunities it offers can there be any broad or attractive expression of community life, and that only through a comprehensive, well ordered system of streets and roads can the function of the town or village be performed with economy and efficiency.

Every decision with regard to the street is important—its location, its width, its subdivision, its grade, its planting, its lighting, etc...Different streets have different functions, and practically every street is related, or should be, to some other street. These varying functions require varying treatment, especially with regard to street widths...The requirements of local streets, in which classification most village streets are included, are different from main thoroughfares, or even secondary streets. The local street should not be broad...If the local street is kept narrow, it acquires a quality more distinctively domestic. It is cozier and more attractive. There are many good examples of local streets laid out with a total width between property lines of 40 feet or even less, the roadway itself being not more than from 18 to 24 feet (Nolen 1918, 98-9).

Exclusion and seclusion result from preventing all but local traffic from entering residential areas.

In 1910, USS established the Bureau of Safety, Relief, Sanitation, and Welfare for the express purpose of “improving the conditions of the employees” (USS 1912, 3). The Bureau published an annual *Bulletin* featuring articles on the USS Corporation’s commitment to the safety, health, and well-being of its employees. USS extolled the attributes of their company town developments in the *Bulletin*. Built in 1912 in north central Jefferson County near Bayview, Docena was not a “new” company town but it displayed some of the same characteristics. USS equipped Docena with a hospital and trained medical staff, ballfields, a pavilion, parks, playgrounds, churches, schools, and a regulated water supply (USS 1913, 33-6). Built into the gridiron site plan were service alleys at the rear of the 137 dwellings. Each dwelling had its own combination coal house and privy. Wagons delivered coal and removed waste. For sanitary and

aesthetic purposes, wagons were restricted to movement through the coal mining camp via the alleys (USS 1913, 33).

Bulletin No. 7 touted the industry leading features of USS's "new" company towns, Fairfield (1909), Morgan Park, Minnesota (1913), Westfield, Jefferson County, Alabama (1917), Lynch, Harlan County, Kentucky (1918), and Chickasaw (1919). Morgan Park's site plan epitomized Garden City planning, "The street layout presents an interesting combination of straight, curved, and radial streets. The long, winding approach and the encircling drives and occasional curved streets made necessary by local conditions give a pleasing variation from the more economical rectangular blocks which occupy the center of the town" (USS 1918a, 68; Alanen 2007, 76-84). The streets are divided into an 80 feet wide main thoroughfare and 50 feet wide secondary streets. Residential areas have rear alleyways for service deliveries and pickups (USS 1918a, 68; Alanen 2007, 78-9). Constructed for African American laborers who worked at USS's Fairfield steel plant, Westfield (no longer extant) had two main streets and a dendritic extension of linear and curvilinear secondary streets. "A sidewalk runs down the center of these residential streets, with housewalks leading from it" (USS 1918b, 77). At Chickasaw, civic and commercial buildings occupy a high point on the terrain. A series of 125 feet wide radial roads emanate outward from the community center to the periphery. Short residential streets measuring 50 feet wide connect to the radials (USS 1918c, 83). Based on the specific characteristics of local topography, the site plans of USS's "new" company towns are alike in Garden City principles only.

In 1919, the Southern Pine Association published a collection of articles on industrial village design. Titled, *Homes for Workmen: A Presentation of Leading Examples of Industrial Community Development*, the compendium is part advertisement and part legitimate planning

journal. The Southern Pine Association sponsored articles on Bayview and Fairfield. The articles read more like promotional literature for Southern Pine which supplied the lumber for house construction in these USS towns, as well as in Kaulton, Alabama. Referring to Bayview, the article opines:

Bayview has every comfort and convenience of the best type of town, with paved streets and alleys, concrete sidewalks, water, electric lights and sanitary system. Its school and church facilities are unsurpassed in any similar community. Parks and playgrounds afford abundant recreative facilities. Skilled social science workers are regularly employed to instruct the children of the miners in all outdoor sports. A healthy community life is fostered on all sides.

Bayview's homes, schools and social centers are constructed entirely of Southern pine (Southern Pine Association 1919, 25).

“Fairfield, Alabama: An Example of the Finer Type of Southern Pine Industrial Village” displays numerous floor and elevation plans and photo layouts of handsome cottages built of Southern pine. The article concludes with a letter from Fairfield developer Robert Jemison. Jemison describes the most popular house model in USS town. The duplex bungalow features Southern pine construction (Southern Pine Association 1919, 109).

Landscape architect George H. Miller contributed a piece on his follow-up to Fairfield, Kaulton (1912). Developed for lumber baron John Kaul in southwest Tuscaloosa, Alabama, Kaulton has a bell-shaped layout consisting of opposing curvilinear streets. Although the plan radically differs from that of Fairfield, the street networks share the same theoretical foundations. “Street widths, width of walks and width of roadways are designed at each point to carry the amount of traffic which will traverse that point and no more” (Miller 1919, 14). The network is function based. Kaulton’s sidewalks, streets, and thoroughfares, like their counterparts at Fairfield, admit the traffic to which they are suited and exclude the traffic to which they are unsuited. Miller’s plan for Kaulton includes planted paths that “shut off” pedestrians from the road on one side and focus their attention on the park on the other (Miller 1919, 13). Miller’s

garden paths are vehicles to Charles Mulford Robinson's *rus in urbe*: country in the city (Robinson 1911, 126).

“The New Deal sponsored the first serious evaluation of the ‘new’ company town. The Urbanism Committee, set up by the National Resource Planning Board, conducted an exhaustive survey of 144 planned towns, garden suburbs, and residential areas under the direction of landscape architect Arthur Comey—planner of Billerica Garden Suburb—and researcher Max S. Wehrly” (Crawford 1995, 204). Of the 144 planned communities, Comey and Wehrly prepared detailed case studies of 90, including USS's Chickasaw, Fairfield, Lynch, Morgan Park, and Westfield (1939, 18). From their intensive surveys, Comey and Wehrly drew some general conclusions regarding the physical layout of planned industrial towns: (1) The surveyed communities evidenced a variety of site plans ranging from the gridiron to the radial-circumferential to the curvilinear or Garden City to hybrids; (2) Site topography typically dictated street patterns. The authors called out Chickasaw as “an interesting adaptation of a gridiron system on a flat site with radials [the 125 feet wide major roads] as collectors that provide direct access to the shipyard” (Comey and Wehrly 1939, 124); and (3) “The principle of the differentiation of street widths in relation to use has been recognized almost without exception in planned communities” (Comey and Wehrly 1939, 125). Citing another specific example, the combination of narrow and curving minor roads in Forest Hills Gardens, New York served as an effective means of controlling traffic and thereby increasing safety. Cul-de-sac and variations, interior parks and walks, created safe and intimate environments free of troublesome automobile traffic. Westfield exhibited a variation on this theme with housing fronting a common open space and motor access restricted to rear alleyways (Comey and Wehrly 1939,

126). Given these and other favorable attributes, Comey and Wehrly affirmed the characteristics of model company towns as beneficial to their residents:

These planned communities, largely as a result of forethought expressed through their planning, are comparatively free from overcrowding of buildings and population. Their inhabitants enjoy greater efficiency, greater safety, and a more healthful and, in a very great measure, a more attractive environment. Many of these communities exhibit an unusually high degree of social cohesion and community spirit (Comey and Wehrly 1939, 7).

According to Margaret Crawford, current professor of Urban Design and Planning Theory in the Graduate School of Design at Harvard University and author of *Building the Working Man's Paradise: The Design of American Company Towns* (1995), the New Deal drew more than conclusions about model town development. The Tennessee Valley Authority (TVA) incorporated “new” company town concepts in the design of Norris, Tennessee in 1933. Built for TVA employees involved in the construction of Norris Dam on the Clinch River, Norris featured “looping circles and cul-de-sacs” draped over rugged terrain. “The entire village of Norris, like Central Park, was linked by a pedestrian circulation system. Completely separated from automobile traffic, pedestrian paths went under the main road and snaked in and out of the woods” (Crawford 1995, 197). Crawford noted that Norris’ planner, Earle Draper, previously experimented with this concept in the site plan of the mill town of Chicopee, Georgia in 1925. In an arrangement similar to George H. Miller’s at Kaulton, Draper separated pedestrian paths from winding streets via dense rows of trees (Crawford 1995, 191).

A Cultural and Historical Geography Professor at Kent State, Christopher W. Post published an article on Sunflower, Kansas in *Material Culture* (2005). Post recast the article as a book chapter in *Company Towns in the Americas: Landscape, Power, and Working-Class Communities* (Dinius and Vergara, editors 2011). In 1943, Architect Clarence S. Stein designed the company town of Sunflower for the Federal Public Housing Administration. Sunflower was

home to approximately 7,000 residents who worked at the nearby Sunflower Ordnance Works from 1943 to 1959. Post noted that Stein based Sunflower on Garden City principles. “The second objective focused on building specialized roads for different purposes. This concept utilized cul-de-sacs and smaller lanes in residential neighborhoods along with larger thoroughfares in business areas to preserve a safer relationship between people and automobiles” (Post 2005, 44; 2011, 118). Winding roads also reduced the impact of the automobile in residential areas (Post 2011, 118).

Robert Fishman examined the Garden City, Broadacre City, and Radiant City in *Urban Utopias in the Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier* (1977). Fishman concluded that “They were utopian visions of a total environment in which man would live in peace with his fellow man and in harmony with nature. They were social thought in three dimensions” (Fishman 1977, 7). Andrew Herod applied Fishman’s conclusion to company towns. “Company towns are, then, an attempt to put ‘social thought in three dimensions.’ They are a concrete example of what I am here calling ‘spatial engineering’—the deliberate manipulation of the landscape—for purposes of social engineering (Herod 2011, 21).

CHAPTER 3: METHODOLOGY

Chapter 3 discusses the methodology and data utilized in Chapters 4 and 5. The literature review indicates that “new” company town planners expressed their intent in the morphology of town sites. To determine the intent of USS town planners, analysis of the settings and site plans of Bayview and Chickasaw, the two case studies, must be conducted. Morphological analysis will consist of observing and describing the physiographic characteristics and layouts of the USS company towns. The data required for this two-fold task includes physiographic description, mapping, and photographic documentation.

The analytical process will be the same for Chapter 4, Bayview, and Chapter 5, Chickasaw. The process begins with an examination of the natural landscape. Understanding the salient features of the topography, or the lay of the land, of Bayview and Chickasaw is essential to understanding the town layout. “New” company town planners, like their progenitors, Garden City planners, designed from the bottom, or ground, up. In the holistic design approach of “new” company towns, house and industrial sites and road layouts depended on the various features of the natural landscape.

Three data sources will direct the morphological analysis of Bayview and Chickasaw. Published in 1975, the *Physiographic Regions of Alabama* identifies and defines the geomorphological characteristics of the two town sites (Sapp and Emplaincourt). Topographic maps merged with digital elevation models (DEMs) via an ArcGIS map interface will generate three dimensional models of the subject terrain. Aerial photographs will reveal real ground

conditions. From this data, the study develops a composite picture of Bayview's and Chickasaw's natural landscapes.

Investigation of the manmade features of Bayview and Chickasaw will proceed along the same lines as the geomorphological research. The study will consult topographic maps and aerial photographs. Using this data, the study will determine the two site plan typologies. Due to the limited scale and resolution of this geographic representation, the directed research will include examination of Sanborn, USS site plan, and tax assessor maps. These relative large scale maps enable review of critical details, such as street widths and arrangements, service alleys and outbuildings, and residential site patterns. Like aerial images, ground level photographic reconnaissance will provide detailed information about the two town sites.

In conclusion, the methodology and data employed in this study are consistent with that used in similar studies. Topographic maps are common spatial analysis tools used by a wide range of professionals, including engineers, landscape architects, urban planners, geographers, and natural and cultural resource management consultants. In his analysis of the USS company town Morgan Park, Arnold R. Alanen mentions that the Minneapolis landscape architecture firm of Morrell and Nichols “formulated a conceptual plan for the model town that utilized a topographic survey that U.S. Steel engineers had prepared several years earlier” (Alanen 2007, 74). The USS topographic study enabled Morrell and Nichols to create “the most desirable street plan’—a modified grid with a combination of rectilinear, curved, and radial roadways. The majority of the curvilinear streets reflected the natural configuration of the terrain...” (Alanen 2007, 76). George H. Miller, John Nolen, USS, the Southern Pine Association, Arnold R. Alanen, Margaret Crawford, and Christopher W. Post featured site plans in their “new” company

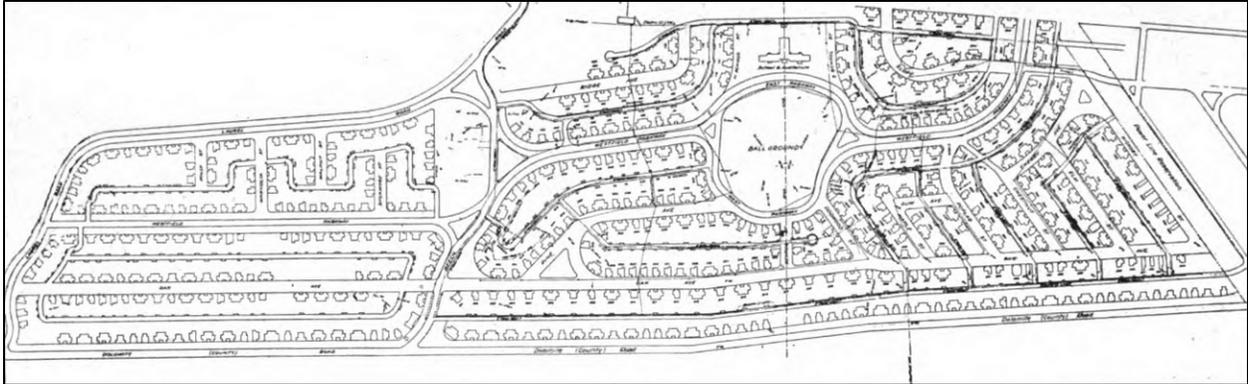


Figure 3-1. Westfield, Alabama site plan. *Source:* USS 1918, 77.

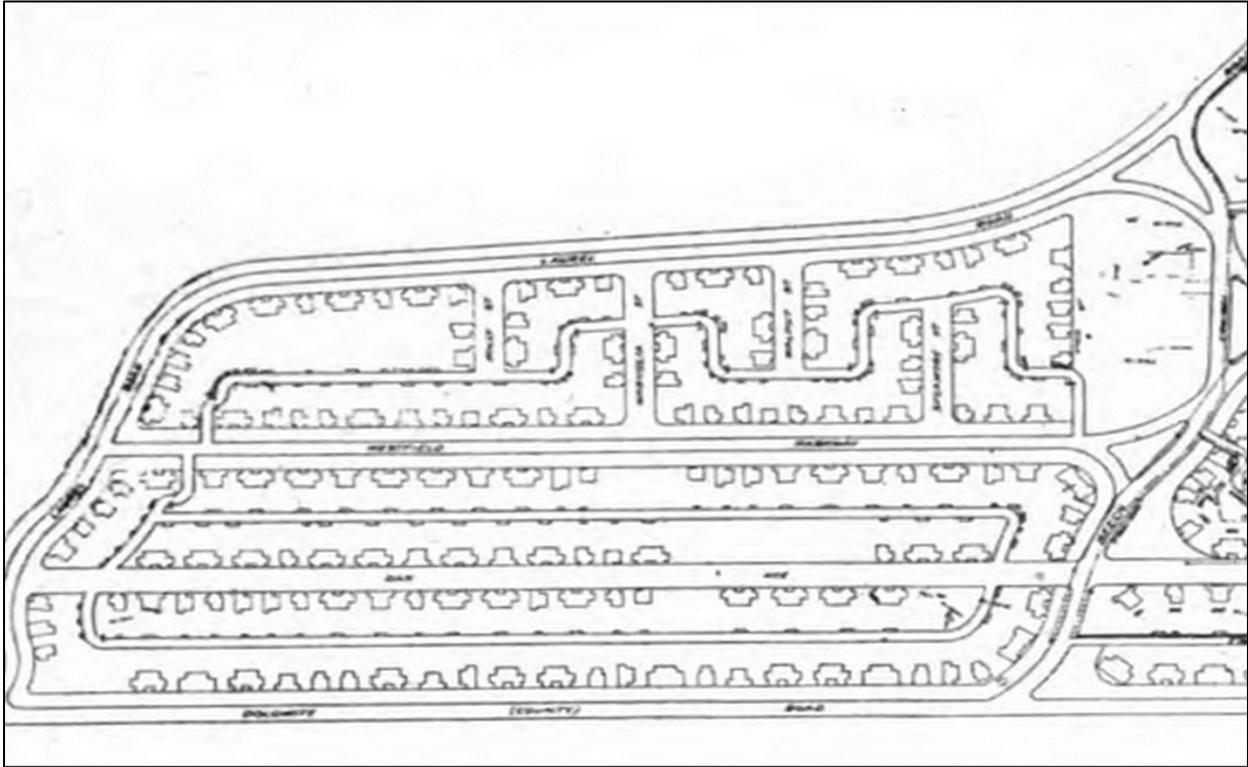


Figure 3-2. Detail of Westfield, Alabama site plan showing sidewalks between houses. *Source:* USS 1918, 77.



Figure 3-3. 1940s-1950s aerial view of Sunflower, Kansas. *Source:* Post 2005, 42.



Figure 3-4. Sidewalk scene showing house rows facing each other in Sunflower. *Source:* Post 2005, 46.

town research (Figures 3-1, 3-2). Christopher W. Post used aerial and ground photographic documentation in his spatial analysis of Sunflower, Kansas (Figures 3-3, 3-4). Through topographic, Sanborn, site plan, and tax assessor maps and photographic documentation, morphological analysis will demonstrate the following: (1) the natural landscapes of the two case studies are different; (2) the site plans are different; and (3) the site plans feature special purpose roads based on “the principle of the differentiation of street widths in relation to use.”

CHAPTER 4: BAYVIEW, ALABAMA ANALYSIS

Chapter 4 focuses on the morphological analysis of the USS “new” company town of Bayview, Alabama. The chapter first establishes the general setting of the historic mining community. It then identifies the town’s physiographic region and discusses its geomorphological characteristics. Finally, the chapter examines Bayview’s layout with specific attention being given to the transportation network.

Bayview is located in west central Jefferson County, approximately 7 miles northwest of downtown Fairfield. The historic community lies along key transportation corridors (Figure 4-1). Oriented in a general north/south direction, a railroad bed, the tracks of which have been removed, bisects the community. The remainder of the line runs south to Fairfield. The Bankhead Highway (U.S. Highway 78) is located several miles north while the Birmingham Road (a.k.a. Alabama Highway 269) lies one mile south. Both highways tie into Birmingham. These transportation routes facilitated the transportation of coal to USS’s manufacturing facilities in Fairfield.

Bayview falls within the Warrior Basin district of the Cumberland Plateau physiographic section of Alabama. The Warrior Basin district is described as a homoclinal limestone valley of low relief. The geological basis of this region consists of synclinal submaturely to maturely dissected sandstone and shale plateau of moderate relief (Sapp and Emplaincourt 1975). Elevation within Bayview varies between 500 ft AMSL and 600 ft AMSL (Figures 4-1-4-2). Three low lying bluffs define the Bayview town site. Resolving in a lower lying, interconnected

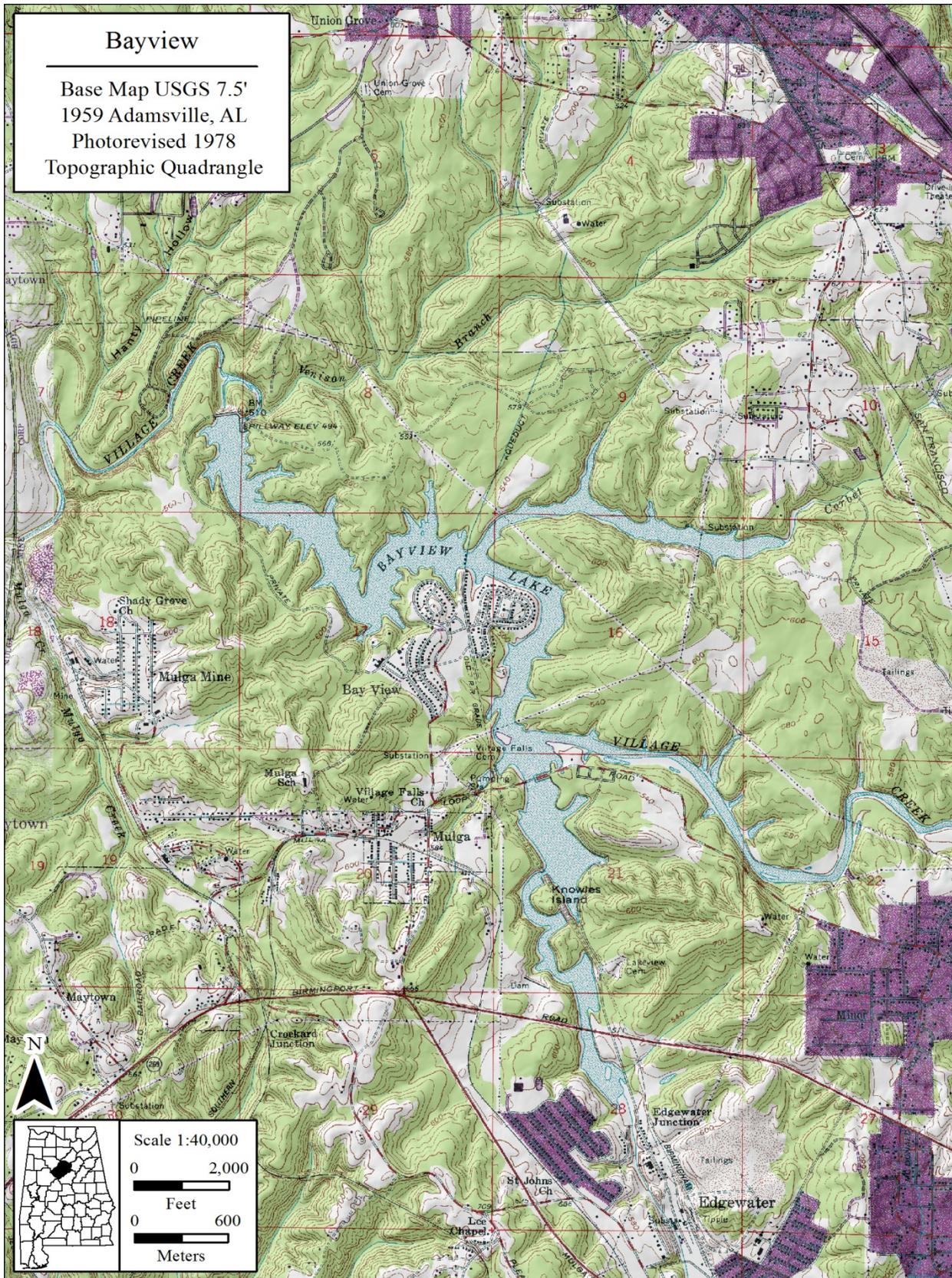


Figure 4-1. Bayview location. Source: USGS.

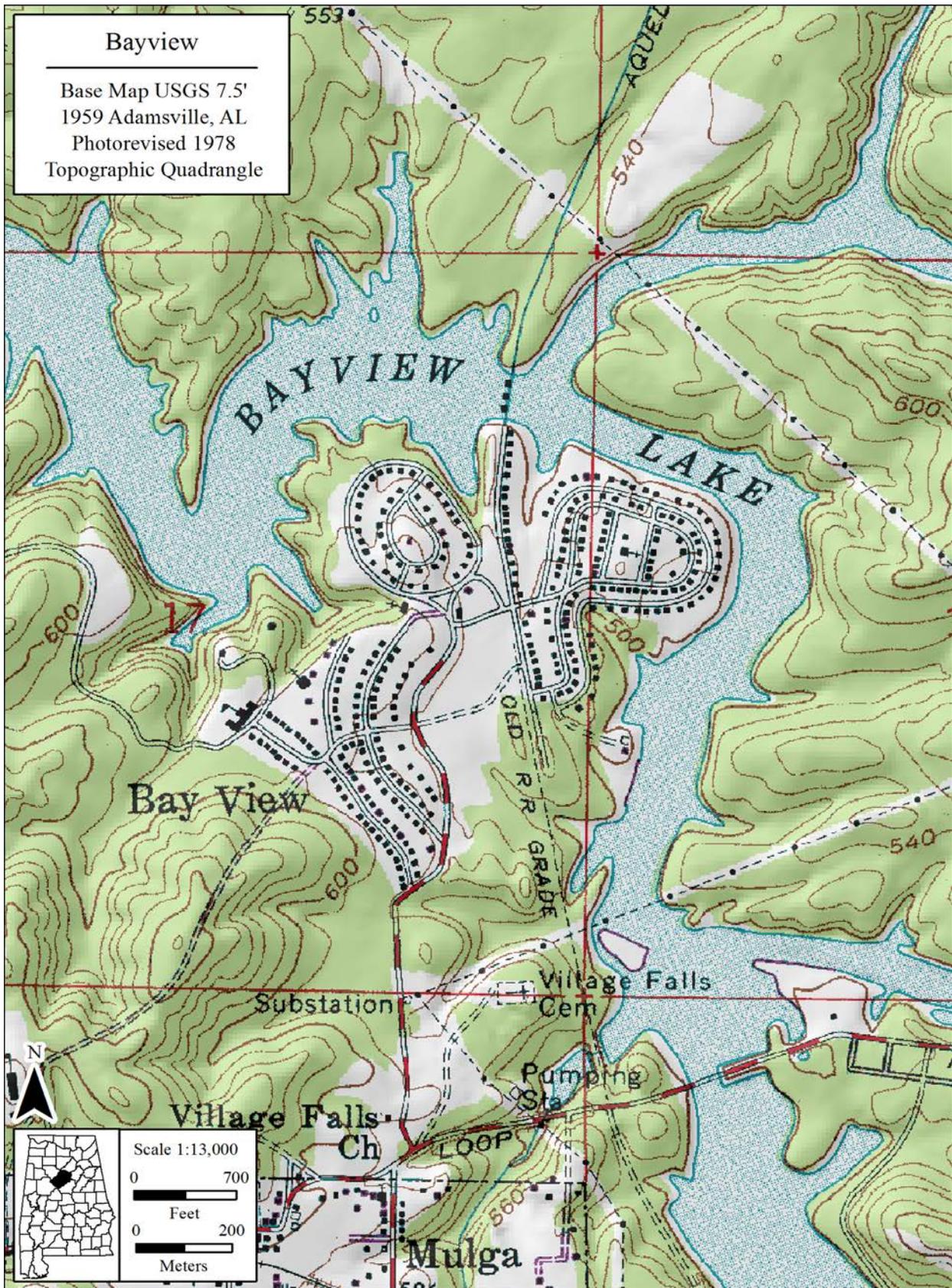


Figure 4-2. Topographic detail of Bayview. Source: USGS.

plateau, or plaza, the three bluffs step down toward each other. An artificial reservoir created by USS in 1911 when it dammed the waters of Village Creek, Bayview Lake wraps around the west, north, and east sides of the two northernmost bluffs. From this water feature, the community derives its name.

Bayview encompasses a 200 acre site. The site is divided into three residential sections, or camps, and a community green (Figures 4-1-4-3). The term community green applies to the current function of several parcels of land situated at the heart of Bayview. The green, called Bayview Park, contains several ball fields, a picnic area, and an open expanse of lawn. Historically, this area encompassed an industrial landscape dedicated to coal mining. Entrances to Bayview's mine were located here along with machine shops and auxiliary structures and buildings. All that is left of this industrial architecture is the foundation of a former ice house. The Front Avenue/Bayview Drive Camp bounds the community core to the west; the Willow/Cypress Avenues Camp to the north; and the Lakeshore Circle Camp to the east (Figure 4-4). These residential sections of Bayview, which also contain a small number of community buildings and churches, are located atop the three bluffs overlooking the lakeshore.

Following the principles of Garden City planning, the layout of Bayview adheres to the topography of the site (Figures 4-1-4-5). Crescent and circular networks of streets and house sites, actually three distinct but connected layouts, one for each camp, conform to the variations in this irregular terrain. Several radial streets connect the three residential camps.

The Front Avenue/Bayview Drive Camp drapes over a rise on the west side of the village. A crescent tiered pattern of streets beginning with Front Avenue and ending with Bayview Drive steps down the rise (Figure 4-6). A connector street, Second Street traverses Front, Park, Forest, and Bayview Streets, enabling direct cross movement between them. Only

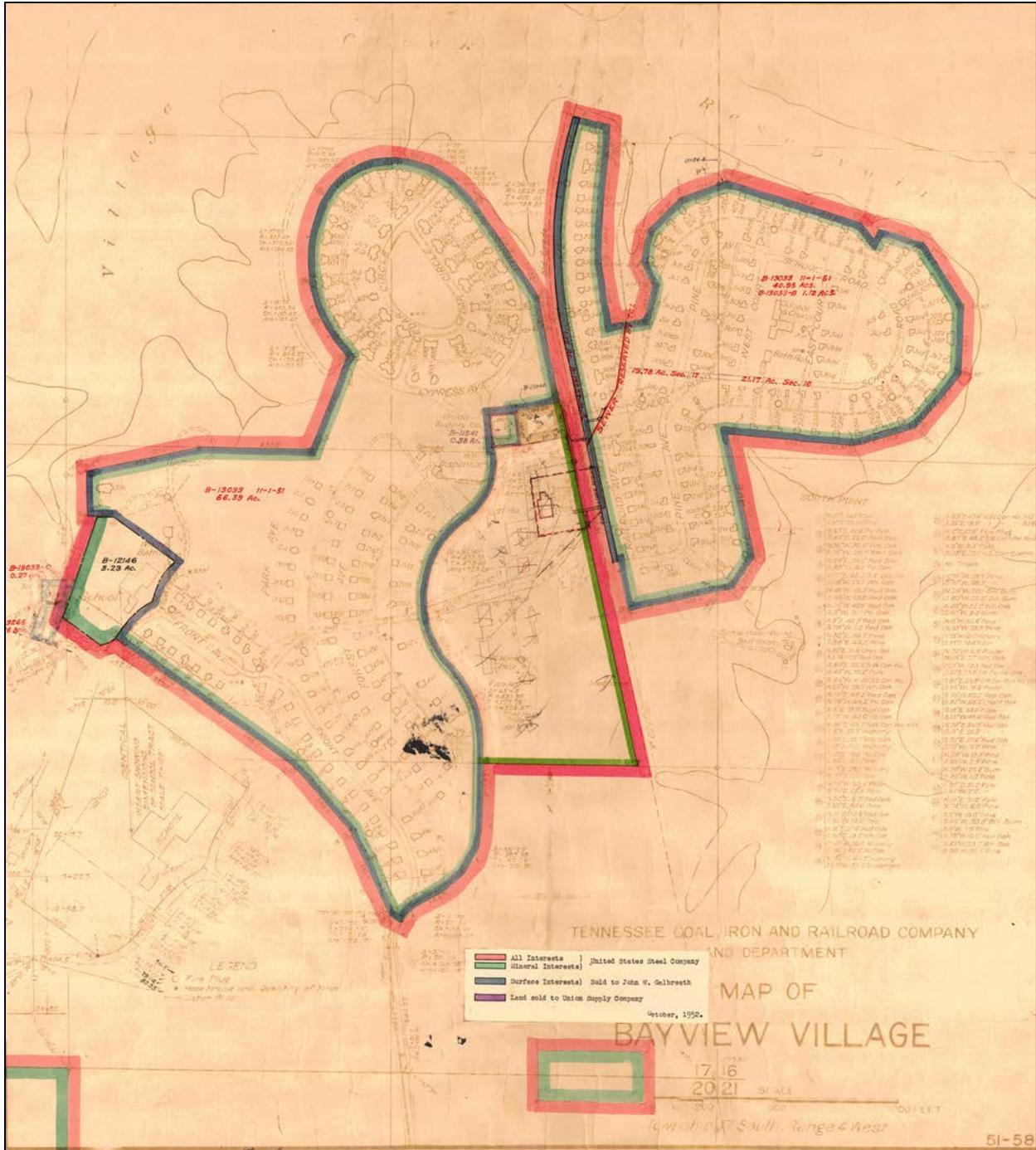


Figure 4-3. Map of Bayview Village. Source: USS 1952.



Figure 4-4. Bayview Camp Map. Map adapted from Jefferson County Tax Assessor, Jefferson County, Alabama.



Figure 4-5. Aerial photograph of the Willow/ Cypress Avenues and Lakeshore Circle Camps. Photograph by Historic American Engineering Record.

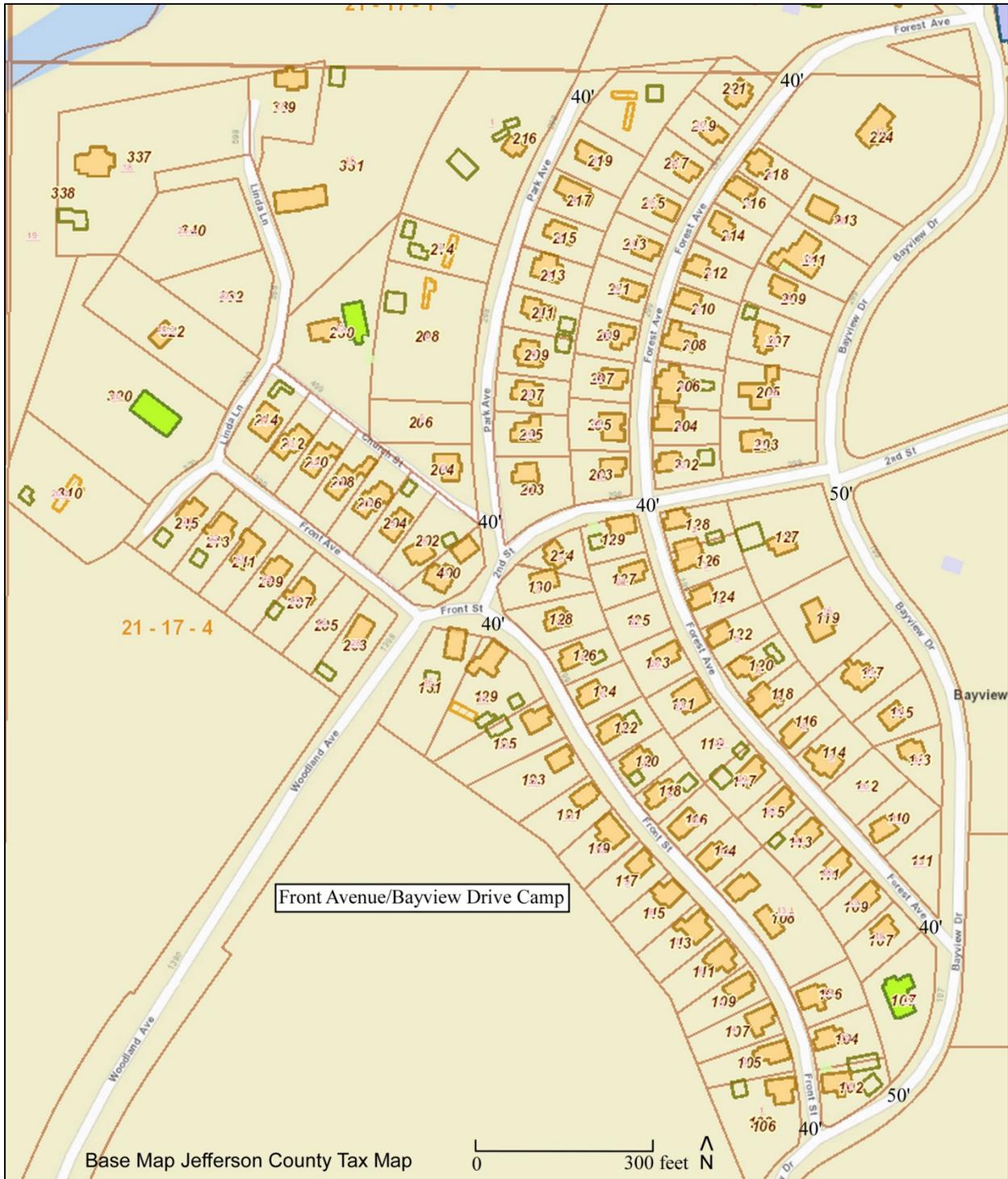


Figure 4-6. Front Avenue/Bayview Drive Camp Map. Map adapted from Jefferson County Tax Assessor, Jefferson County, Alabama.

one house site is situated on Second Street. The serpentine line of Bayview Drive serves as the entry and spine of not only the Front/Bayview Camp but also the village as a whole. Houses line either side of Front, Park, and Forest while those on Bayview face Bayview Park. Set on a ridge overlooking Bayview's former mine, Bayview Drive is known as "Foreman's Row" for the USS employees who once resided there and supervised the daily industrial activities of the coal mining town.

Bayview Drive forks at its northern end. The left fork ties into Willow and Cypress Avenues (Figure 4-7). Willow forms the west arc and Cypress the east arc of the outer circle of a two-ring circular street pattern. Appropriately named, Cedar Circle forms the inner ring. Outlets in Cedar Circle link to the outer ring. Houses located on Willow and Cypress Avenues face outward from the street circle whereas Cedar Circle residences face inward.

The right fork of Bayview Drive curves back to Railroad Avenue. The path of this avenue is linear compared with Bayview's other primary streets. Railroad Avenue adheres to the path of a manmade element, a rail line, rather than the natural topography of the site. Houses are oriented westward along Railroad Avenue. Railroad Avenue and Bayview Drive serve as the primary radials for Bayview.

Two pass throughs in Railroad Avenue, one midway and another at its south end, provide access to the Lakeshore Circle Camp. The Lakeshore Camp combines circular and crescent street patterns in its layout (Figure 4-8). Lakeshore Circle and Pine Avenue-School Road form the outer and inner rings, respectively, of the site plan. The southern ends of Lakeshore and Pine wind southward to the south end of Railroad Avenue. West and East courts bisect Pine Avenue-School Road in a north/south direction. The rectangular parcel of land between West and East



Figure 4-8. Lakeshore Circle Camp Map. Map adapted from Jefferson County Tax Assessor, Jefferson County, Alabama.

Courts is the site of remnants of a school house and the Bayview Baptist Church. Dwellings on the two small streets face the court. Pine Avenue-School Road features house lots on either side of the street; consequently, houses face each other on this inner ring. Residences on Lakeshore Circle turn their backsides to the street and look out over the beautiful view of Bayview Lake.

Bayview's comprehensive planning included provisions for a simple but effective circulatory system. Following Unwin's, Robinson's, Miller's, and Nolen's recommendations for street articulation, USS planners zoned Bayview's roadways according to function. Planners assigned heavy-duty traffic to Bayview Drive and Railroad Avenue, both of which flank the mine and related operations. The 50 foot widths of these roads easily accommodate industrial and service vehicles. Confined within the interior of Bayview, Railroad Avenue only serves local traffic. Bayview Drive is the town's main thoroughfare. Through Bayview Drive, Bayview is connected through a series of roads to the greater Birmingham area.

The widths of Bayview's three residential camps narrow to prevent the intrusion of all but residential traffic. The Front Avenue/Bayview Drive Camp Streets, Front, Park, and Forest Avenues, feature a uniform width of 40 feet (Jefferson County Tax Assessor 2013). Cedar Circle, the interior ring of the Willow and Cypress Avenues Camp, varies in width from 32 feet to 36 feet (Jefferson County Tax Assessor 2013). The Lakeshore Circle Camp roads maintain a narrow width of 32 feet (Jefferson County Tax Assessor 2013). Combined with restrictive widths, the curvilinear forms of the crescent, ring, and loop roads keep out unwanted traffic from the inner sanctums of the three camps (Figure 4-9). The idea here is to maintain the idyllic character of the villages. Recalling John Nolen, "If the local street is kept narrow, it acquires a quality more distinctively domestic. It is cozier and more attractive" (Nolen 1918, 99).



Figure 4-9. Intersection of Front Avenue and Second Street. Narrow, serpentine path of Front Avenue makes it difficult for large vehicles to navigate. Photograph by Gene A. Ford.

Lastly, USS equipped the three villages with service alleys. These alleys kept the unsightly mess of trash and human waste removal and coal delivery out of sight and out of mind:

In the rear of each house, adjoining the alley which separates the lots in the rear, is located a combination coal house and privy. These privies are of standard construction, well ventilated, fly-proof, and are equipped with water-tight cans or receptacles, in order to render soil pollution impossible. They are provided with tight fitting trap doors in the rear for the removal of cans. At regular intervals the receptacles are removed, by means of a specially designed sanitary wagon in charge of a company sanitary man, and are conveyed to a septic tank and they are disposed of in the usual manner...The sanitary wagon passes along the alleys in the rear of the houses, and not through the main streets of the town (USS 1913, 33).

The outhouses and service alleys are no longer present in Bayview (Ford 2012). Bayview's circulatory system facilitates the movement of people to and from destinations in and out of town and the enhancement of the worker's living quarters by removing harmful agents such as traffic congestion and refuse.

CHAPTER 5: CHICKASAW, ALABAMA ANALYSIS

Chapter 5 focuses on the morphological analysis of the USS “new” company town of Chickasaw, Alabama. The chapter first establishes the general setting of the historic ship manufacturing community. It then identifies the town’s physiographic region and discusses its geomorphological characteristics. Finally, the chapter examines Chickasaw’s layout with specific attention being given to the transportation network.

Chickasaw is located in east central Mobile County, approximately four miles north of downtown Mobile (Figures 5-1, 5-2). Begun in 1917 by USS, the historic community lies along the Burlington Northern and Southern railroads, which are oriented in a general north/south direction. The Craft Highway (Alabama Highway 13-U. S. Highway 43) parallels the rail lines. On the east side of the village, a shipyard adjoins the west bank of the Chickasaw Creek, also known as Chickasabogue. The creek flows into the Mobile River approximately one mile south of Chickasaw. These transportation routes contributed to the selection of this location for the Chickasaw Shipyard Village.

Chickasaw falls within the Coastal Lowlands district of the East Gulf Coastal Plain physiographic section of Alabama. The Coastal Lowlands district developed primarily on sand and mud. The landforms are highly variable, being continually modified by wind, tides, currents, and waves (Sapp and Emplaincourt 1975). Elevation within Chickasaw varies between 10 ft AMSL and 30 ft AMSL (Figures 5-1, 5-2). Much of the USS company town of Chickasaw is a

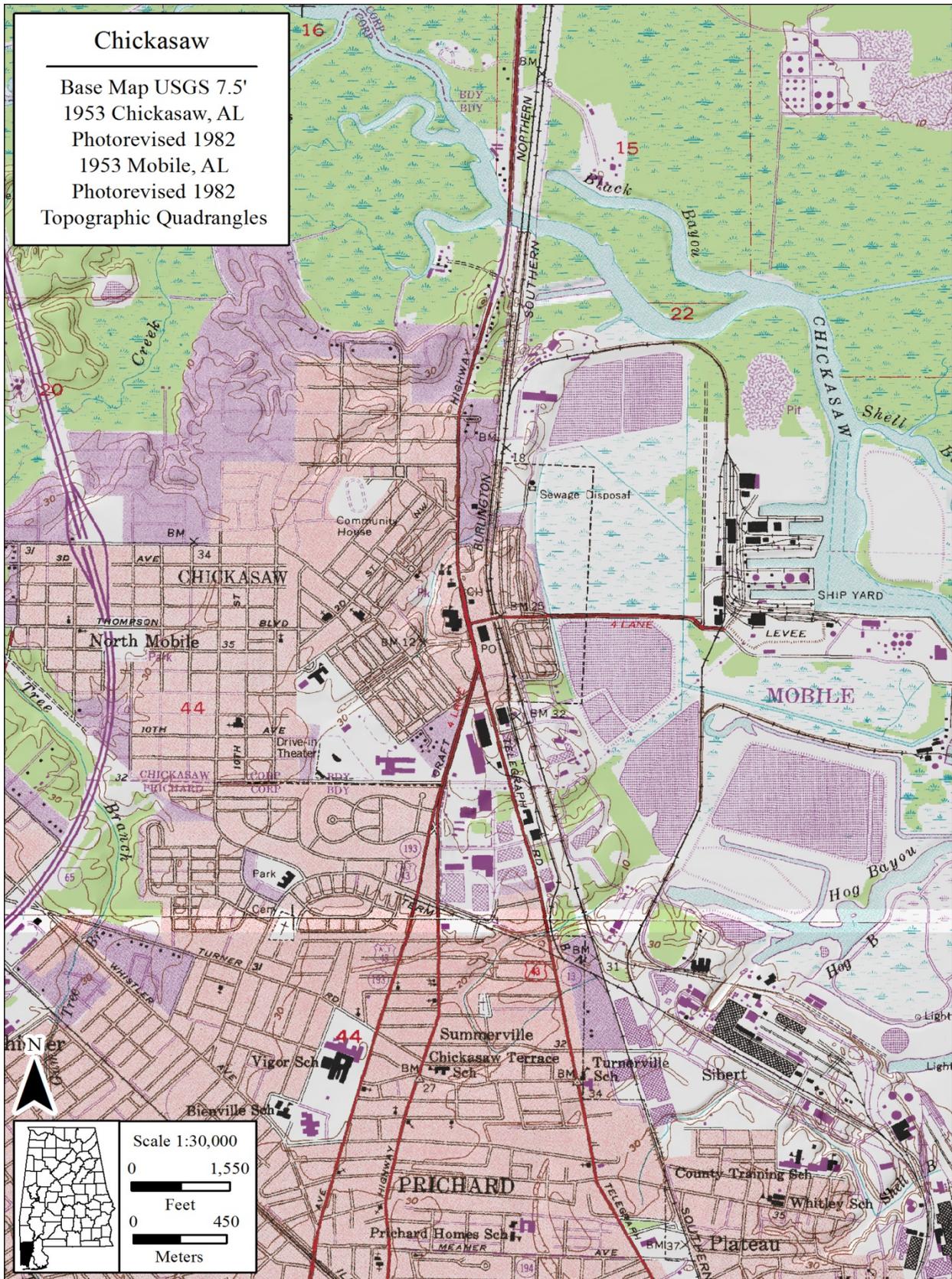


Figure 5-1. Chickasaw location. Source: USGS.

relatively flat, artificial land mass built up out of swampland in 1917 (Merchants Bank 1920, 8; Ford 2002, 94-5).

The Craft Highway and the Burlington Northern and Southern Railroads divide the residential portion of Chickasaw into two villages, the West and East Villages. The West Village is bounded by Jefferson Street (Fourth Street) to the North; Jackson Street to the west; 7th Street to the south; and Yeend Avenue to the east. The East Village is bounded by Southern Street to the west and north; and Shipyard Street to the south and east. Between the two villages and along the Craft Highway are located the Chickasaw School, Chickasaw City Hall, the Ice House, and the Community Green, or Paul Devine Park as the green was designated in 1995. Linked to the villages by Viaduct Way, the shipyard occupies the eastern portion of the Chickasaw Shipyard Village.

Chickasaw does not feature a Garden City site plan in the fashion of Bayview and Fairfield. Chickasaw's streets are neither curvilinear nor do they gracefully flow with undulating terrain; rather, they are flat and straight. The flat lands and intermittently dispersed swamp lands of the Chickasabogue did not lend themselves well to the development of informal arrangements of housing along curvilinear streets when USS planners surveyed the lay of the land. The limited availability of flat land dictated a more formal layout based on the gridiron. John Nolen was a strong advocate of designing planned communities based on the dictates of topography (Nolen 1918, 97).

A grid pattern of streets and alleys define the layout of the East Village (Figure 5-3). Southern Street bounds the grid to the north and west, Shipyard Road to the south and east, and Ryan Street to the east. These streets traverse the village in a latitudinal direction. Southern and

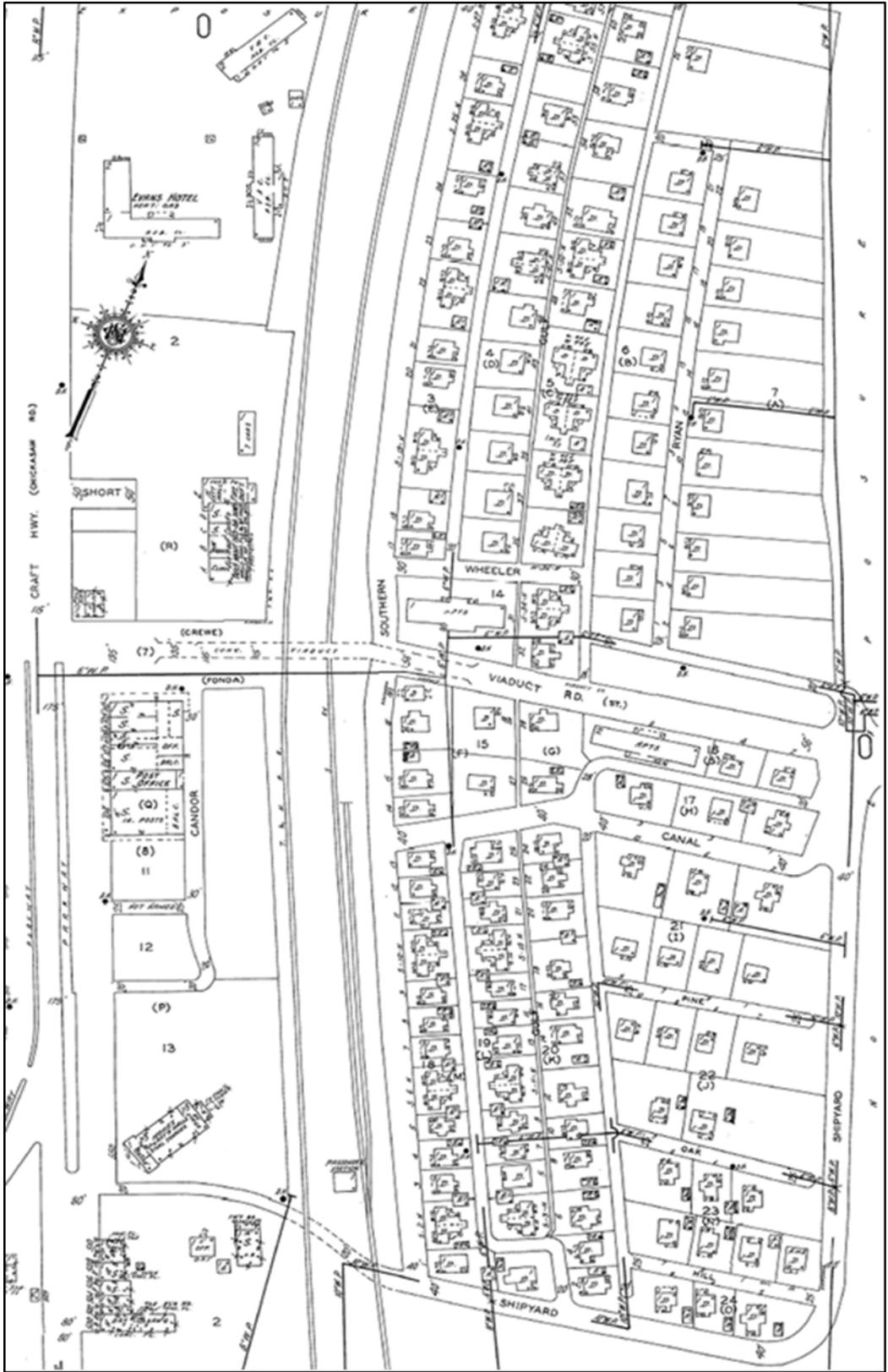


Figure 5-3. 1924 (Revised 1950) Sanborn Map showing the East Village. Source: Sanborn Map Company.

Shipyards actually link together forming one continuous, oval circuit encompassing the East Village. Gulf Street and two service alleys run parallel to Southern, Hill, Oak, Pine, Canal, and Wheeler Streets and Viaduct Way runs perpendicular to the aforementioned streets. Viaduct Way divides the East Village into two sections. In the East Village, Chickasaw's road network exhibits characteristics of hierarchical ordering. Transportation lines decrease in scale based on their function in the system. In the USS scheme, the trunk line U.S. Highway 43 (115 feet wide) conducts commercial and industrial shipments between Chickasaw and market destinations in Birmingham and Mobile. According to a Sanborn map, Viaduct Way measures 56 feet across (Figure 5-4). As its name suggests, Viaduct had to be substantially built to handle daily movements of work forces, raw materials, and work vehicles to and from the shipyard. Southern, Shipyards, and Canal Streets are 40 feet wide while Wheeler is 30 feet wide. Oak, Hill, and Pine Streets measure 25 feet wide (Figure 5-4). On the Sanborn map, Gulf Street appears to be approximately 3 feet wide (Figure 5-4). This width is insufficient for one car to navigate let alone two side by side. In reality, Gulf Street is classified as a sidewalk, or pedestrian street, dedicated solely to pedestrian traffic (Figures 5-5, 5-6). Houses along the entire length of Gulf Street face each other. Replete with garages and combination coal and ice storage outbuildings, service alleys measuring 20 feet wide are located on the opposite sides of the Gulf Street houses. These narrow corridors limit movement to garage access and pickup and delivery.

On the other side of the tracks and highway, the West Village consists of two, large, rectangular grid patterns of streets that intersect at a 45 degree angle (Figure 5-7). In the north grid, Jackson, Lee, Jefferson, and Grant Streets form the perimeter of the rectangle. Jackson, Second, Third, First, and Grant Streets are oriented in a northeast/southwest direction. Lee and Jefferson Streets and Northwest Boulevard are perpendicular to Jackson and Grant. In the south

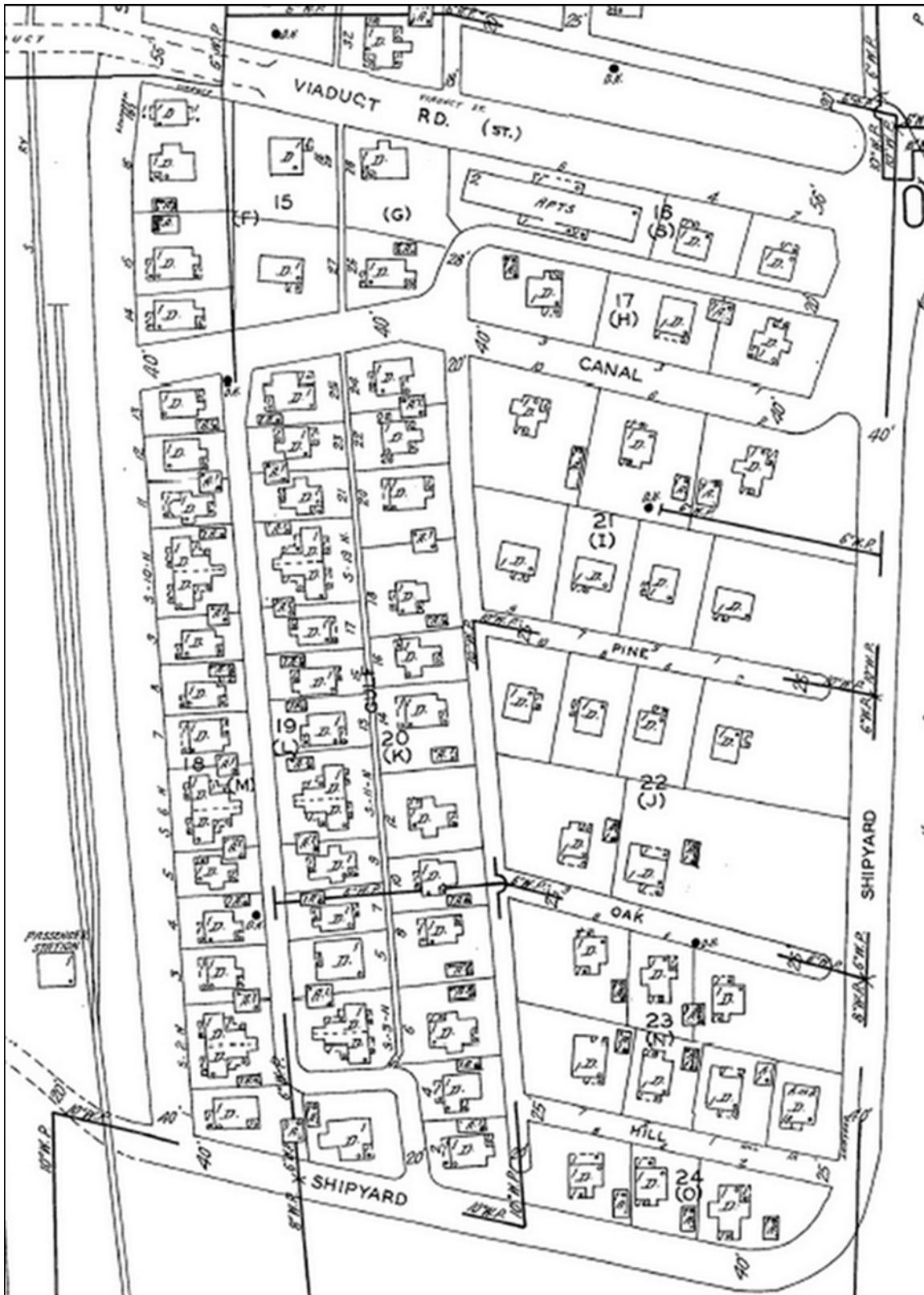
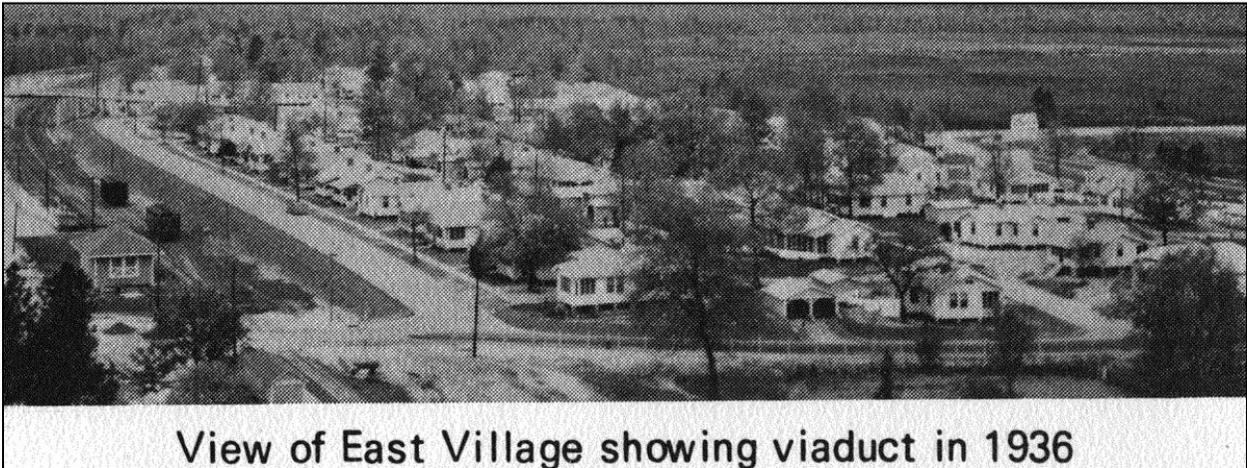


Figure 5-4. 1924 (Revised 1950) Sanborn map showing the south half of the East Village.
Source: Sanborn Map Company.



Figure 5-5. Gulf Street, or sidewalk, in the East Village. Photograph by Gene A. Ford.



View of East Village showing viaduct in 1936

Figure 5-6. Aerial depicting the south end of the East Village. *Source:* City of Chickasaw.

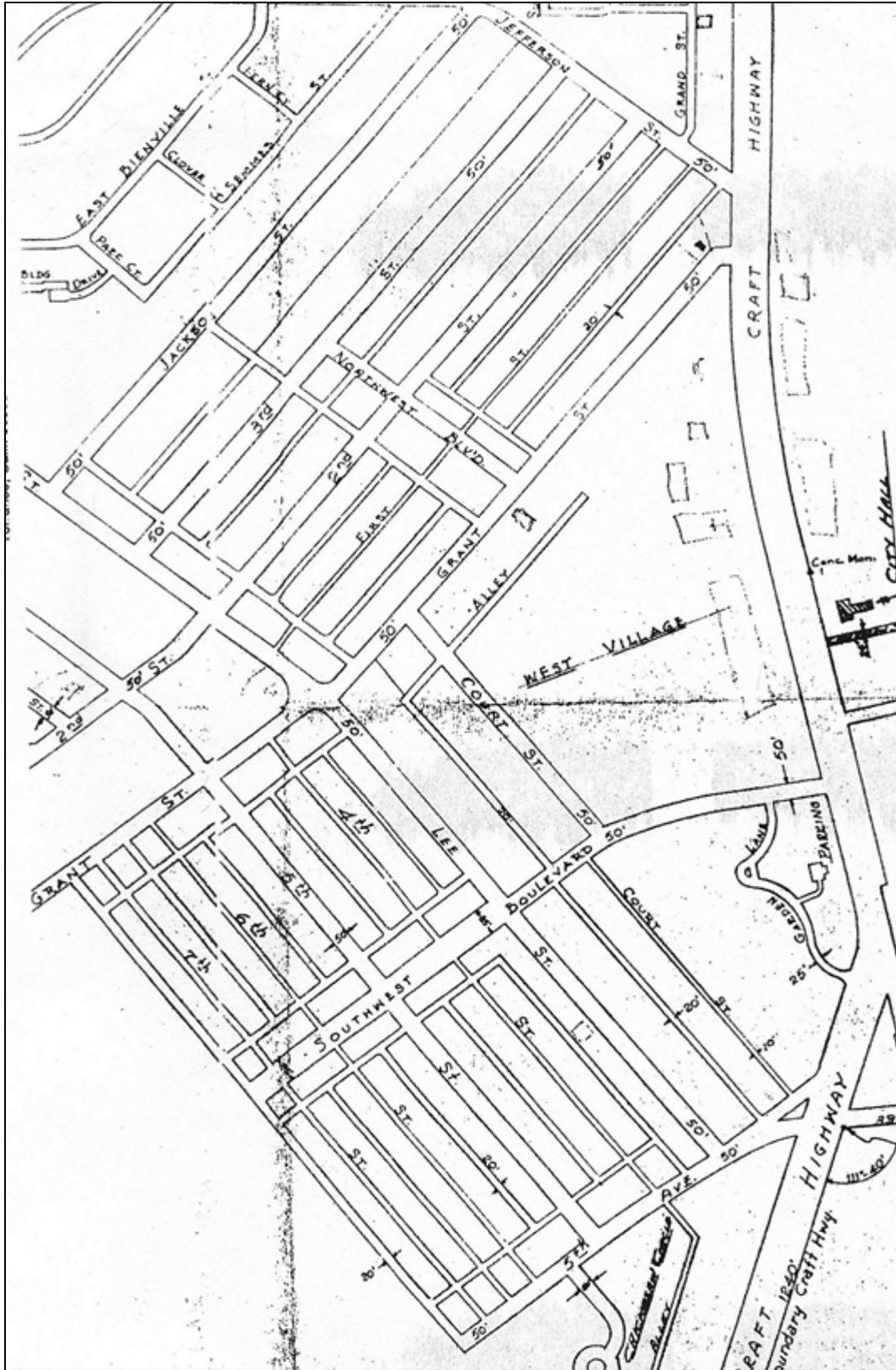


Figure 5-7. 1949 Chickasaw Map depicting the West Village. Source: W. P. B.

grid, Grant and Court Streets, Yeend (named after a city official) Avenue, and a service alley form the perimeter of the rectangle. Grant Street, Southwest Boulevard, and Yeend Avenue are oriented in a northwest/southeast direction. Court, Lee, Fourth, Fifth, Sixth, and Seventh Streets are perpendicular to Grant and Yeend.

Like the East Village, the dimensions of Streets in the West Village correspond with their function. Jackson, Jefferson, Grant, Northwest, Third, Second, Court, Lee, Southwest, and Yeend have a width of 50 feet (Figure 5-7). These collector lines, or radials, move two-way automobile traffic through the two neighborhoods. First, Fourth, Sixth, and Seventh Streets measure 3 feet wide. Like Gulf Street in the East Village, these streets are actually sidewalks. On First, Fourth, Sixth, and Seventh, Craftsman and Colonial Revival styled residences stand no more than ten feet away from either side of the sidewalk. The front porches of these houses in effect open out on to the communal pathways (Figure 5-8).

In order to free sidewalks from service traffic, USS planners located garages and multiple use coal and ice bins at the back of the lots on 20 feet wide alleyways (Figure 5-9). This interrelationship of housing and transportation infrastructure resulted in an uncluttered, compact site plan. According to one observer, “the plan provides for the largest practical number of homes on the smallest practical acreage” (Chickasaw Chamber of Commerce 1941, 2).

While practicality and economy were/are certainly driving factors in town planning, Chickasaw’s pedestrian streets also reflected the widespread emergence of the automobile in America. At the time of Chickasaw’s planning, the automobile had become as much a bane to Americans as it had become a boon:

The automobile was a disrupting menace to city life in the U.S.A. Pedestrians risked dangerous motor crossings twenty times a mile. The roadbed was the children’s main play space. Quiet and peaceful repose disappeared along with safety. Porches faced



Figure 5-8. A bungalow at 212 7th Street facing a sidewalk, or pedestrian street, in the West Village. Photograph by Gene A. Ford.



Figure 5-9. A service alley featuring a detached garage and a coal and ice bin. Photograph by Gene A. Ford.

bedlams of motor thoroughways with blocked traffic, honking horns, noxious gases. Parked cars, hard grey roads and garages replaced gardens (Stein 1951, 41-2).

Chickasaw planners acknowledged the automobile as an important mode of transportation. The company town site plan made provisions for automobiles via a road network and service alleys replete with garages for housing cars when not in use. However, following John Nolen's recommendation for street articulation, planners prevented the intrusion of undesirable traffic in the residential core by reducing the network scale. The foot paths of First, Fourth, Sixth, Seventh, and Gulf Streets do not admit cars. Through this mechanism, Chickasaw's planners achieved the separation of man and machine. Chickasaw's pedestrian streets function as safe havens, separating those engaged in walking, talking, and playing from potentially dangerous interaction with motor cars. Chickasaw's alleyways play their role in enhancing the appeal of the sidewalk streets by keeping the unsightly mess of trash removal, coal and ice delivery, and auto storage out of sight and out of mind. With the outside world kept at bay, residents of First, Fourth, Sixth, Seventh, and Gulf Streets enjoy the comforts and pleasures of home, family, and friends.

CHAPTER 6: SUMMARY AND CONCLUSIONS

Andrew Herod provides the theoretical foundations of this paper in his essay, “Social Engineering through Spatial Engineering: Company Towns and the Geographical Imagination”:

Company towns are the product of their designers’ hope that shaping the built environment in particular ways will allow them to further their political, economic, and cultural goals, whether these be exerting control over their labor force, ensuring the development of particular types of industrial relations, or, perhaps more altruistically, providing their workers with better housing than they might otherwise be able to secure. Company towns are then, an attempt to put “social thought in three dimensions,” as Robert Fishman termed it. They are a concrete example of what I am here calling “spatial engineering”—the deliberate manipulation of the landscape—for purposes of social engineering (Herod 2011, 21).

For Herod, “The concept of spatial engineering is important because it provides an entrée into theorizing more broadly how the landscapes within which workers find themselves are socially produced...” (Herod 2011, 21).

This research paper applies Herod’s concept of “social engineering through spatial engineering” to a line of inquiry involving the role transportation networks played in shaping the built and social environments of USS’s “new” company towns in Alabama. Pursuant to this inquiry, this study examines the history and spatial arrangements of transportation networks and residential sites in “new” company towns through an extensive literature review and two case studies, Bayview and Chickasaw. With respect to the literature review and case studies, the paper focuses on the design criteria that influenced the physical forms of USS’s circulatory systems. Morphological analysis of Bayview and Chickasaw explores the forms of the towns’ manmade features and natural landscapes. The final chapter draws conclusions from the literature review

and applies them to the morphological investigations of the two case studies to demonstrate the intentional engineering of roadways for the safety, health, and well being of the residents.

The literature review documents the evolution of site planning in “new” company towns. Raymond Unwin’s practical translation of Ebenezer Howard’s spoked and ringed street and avenue layout represents the genesis of a tiered circulatory system. Unwin expressed his thoughts on the subject in text and architecture. In *Town Planning in Practice: An Introduction to the Art of Designing Cities and Suburbs*, Unwin argued for the division of street networks into main roads for traffic and subsidiary roads, or cul-de-sacs and courtyards, for house sites (Unwin 1909, 354, 357, 365, 367-68). For Unwin, Letchworth’s informal housing areas situated on these two site plans offered residents asylum from the ills of the modern world (Unwin 1909, 354, 357, 365, 367-68).

Charles Mulford Robinson, the Dean of urban planning in America, engineered a hierarchically ordered street plan in *The Width and Arrangement of Streets*:

That circumstance makes upon the street plan a demand for a strictly two-fold service—the one for traffic and the one for quiet residence—with an urgency unknown before. It offers the opportunity, and even the obligation, to create two distinct kinds of streets that shall serve in the best possible way these diverse needs (Robinson 1911, 9).

Robinson refined Unwin’s subsidiary road model. He narrowed the courtyard and cul-de-sac to a footpath and service alley. Through this spatial arrangement, Robinson pastoralized an urban form, “By these means, then, might we not create, very simply and practically, a *rus in urbe* [country in city] of a most serviceable kind—even a Garden city” (Robinson 1911, 126).

Like Unwin and Robinson, landscape architect George H. Miller designed model towns and published articles on the subject. Fairfield, which established a paradigm in industrial village design, and Kaulton, also a “new” company town, share street plan constructs: “Street widths, width of walks and width of roadways are designed at each point to carry the amount of traffic

which will traverse that point and no more” (Miller 1919, 14). The benefit of such a network is the segregation of traffic types. Kaulton’s garden paths grew out of Robinson’s concepts for the development of *rus in urbe* (Miller 1919, 13; Robinson 1911, 126).

The literature review documents scholarly analysis of “new” company towns. Arthur Comey and Max S. Wehrly conducted detailed case studies of 90 planned towns, garden suburbs, and residential areas, including USS’s Chickasaw, Fairfield, Lynch, Morgan Park, and Westfield (1939, 18). From their analysis, the two researchers drew a series of conclusions: (1) The surveyed communities featured a variety of site plans; and (2) “The principle of the differentiation of street widths in relation to use has been recognized almost without exception in planned communities” (Comey and Wehrly 1939, 125). Comey and Wehrly noted narrow and curving roads, cul-de-sacs and variations, interior parks, and walks in the built environments of various planned communities. Given these and other favorable attributes, Comey and Wehrly affirmed the characteristics of model company towns as beneficial to their residents: “These planned communities, largely as a result of forethought expressed through their planning, are comparatively free from overcrowding of buildings and population. Their inhabitants enjoy greater efficiency, greater safety, and a more healthful and, in a very great measure, a more attractive environment (Comey and Wehrly 1939, 7).

Margaret Crawford and Christopher W. Post analyzed planned communities built by the Federal government in the 1930s and 1940s. Crawford and Post determined that Earle Draper and Clarence Stein based Norris, Tennessee and Sunflower, Kansas, respectively, on “new” company town principles. “The entire village of Norris, like Central Park, was linked by a pedestrian circulation system. Completely separated from automobile traffic, pedestrian paths went under the main road and snaked in and out of the woods” (Crawford 1995, 197). Sunflower

employed cul-de-sacs and central sidewalks to “preserve a safer relationship between people and automobiles” (Post 2005, 44; 2011, 118). In both communities, winding roads minimized the impact of vehicular traffic in residential areas.

From the literature review, this study constructs a series of principles regarding the spatial and social engineering of “new” company town planning: (1) Following Garden City planning, “New” company town planners designed from the bottom, or ground, up, preserving the natural landscape with an eye toward imparting an “organic sense of order” and “natural beauty” on the overall town setting (Robinson 1911, 13-4; Fishman 1977, 68); (2) In the holistic design approach of “new” company towns, site plans depended on the various features of the natural landscape (Nolen 1918, 97; White 1989, 16); (3) “The principle of the differentiation of street widths in relation to use has been recognized almost without exception in planned communities” (Comey and Wehrly 1939, 125). “New” company town planners observed this principle for the dual purposes of efficiency and safety (Comey and Wehrly 1939, 7; Post 2005, 44; 2011, 118); and (4) Residential roads, i.e., the cul-de-sac, courtyard, and pedestrian street, derived from the principle of the differentiation of street widths. These special purpose roads segregated residential areas from the rest of town. This spatial arrangement created idyllic living conditions for residents (Unwin 1909, 354, 357, 365, 367-68; Robinson 1911, 126; Miller 1919, 13; Comey and Wehrly 1939, 7; Crawford 1995, 197; and Post 2005, 44; 2011, 118).

Although the natural landscapes and site plans of Bayview and Chickasaw represent studies in contrast, morphological analysis of the physiographic characteristics and site plan typologies of the two USS “new” company towns substantiates the conclusions drawn from the literature review. A Garden City site plan with crescent and loop shaped roads conforms to the rolling topography of Bayview whereas a modified gridiron with intersecting grids connected by

radials adheres to the relatively low and flat terrain of the Chickasaw Shipyard Village. Morphological differences aside, the transportation networks in Bayview and Chickasaw exhibit “the principle of the differentiation of street widths in relation to use.” In the transportation networks of Chickasaw and Bayview, roadways progressively diminish in scale from trunk line to radial to residential street to service alley to pedestrian path as use diminishes from commercial and industrial through traffic to local collector activity to residential traffic to service delivery and pickup to pedestrian movement (Sanborn Map Company 1924 (revised 1950); W. P. B. 1949; and Jefferson County 2013).

The intent of USS planners manifests itself in the “the principle of the differentiation of street widths in relation to use” in Bayview and Chickasaw. In Bayview, narrow and winding lanes preserve the residential fabric of the three camps while service lanes keep the neighborhoods streets clean and pristine. In Chickasaw, “the principle” achieves the same means but through an alternate spatial arrangement. Pedestrian streets in combination with service lanes render the West and East villages “more distinctively domestic, cozier, and more attractive” (Nolen 1918, 99). The principle then is neither natural landscape nor built environment specific in “new” company town planning. It works in concert with any combination of terrain and site plan; hence, its universal application in “new” company towns.

In conclusion, “new” company town planners did more than just design better housing for village employees. George H. Miller, John Nolen, Earle Draper, and USS planners developed working men’s paradises based on the spatial engineering principle of “the principle of the differentiation of street widths in relation to use.”

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