A CHANGE IN PERSPECTIVE: NEW PRIORITIES FOR NEIGHBORHOOD DESIGN IN JOHNSON COUNTY, KANSAS

by

DAVID L. VOGEL

B.A., Kansas State University, 1993
J.D., Drake University Law School, 2007

A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture/Regional and Community Planning
College of Architecture, Planning, and Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2009

Approved by:

Major Professor
Timothy D. Keane

Abstract

The fundamental purpose of this project, a suburban infill endeavor in southern Overland Park, Kansas, is to create connections on a number of levels and scales through the implementation of traditional neighborhood design principles within the context of the natural and man-made conditions affecting the site.

Beginning at the smallest scale, the project examines what kinds of conditions are best suited for connecting people to one another within the site itself in terms of circulation networks, outdoor public spaces, civic uses, and the relationships of buildings and blocks. On a larger scale, the project explores methods for creating connections between the site and the wider community, both locally and regionally, through the integration of trail systems, land uses, and road networks. It also examines the principles for designing a mixed-use component intended to draw people from a wide geographic area and to serve as a center of activity for residents and visitors alike because of its distinctive qualities. Finally, the project examines principles for creating connections between people and the natural environment through the preservation of existing stream corridors, drainage channels, and woodlands and the restoration of the prairie systems that once characterized the land.

Instead of sitting in isolation and addressing only the needs of its own residents while turning its back on adjacent land uses and the wider community, the project utilizes a design that directly engages that community through the full integration of its program elements. Traditional neighborhood design principles are therefore best applied not as a formula but rather as a flexible framework for the design components that define the form of the project. Ultimately the project seeks to achieve its goals and objectives not by simply replicating previous efforts but by developing and applying its own creative design solutions.

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A Change in Perspective

New Priorities for Neighborhood Design in Johnson County, Kansas

David Vogel • Kansas State University • Master's Project and Report • Spring 2009

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Abstract

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Introduction

Site Location and Description

Fig. 1-1

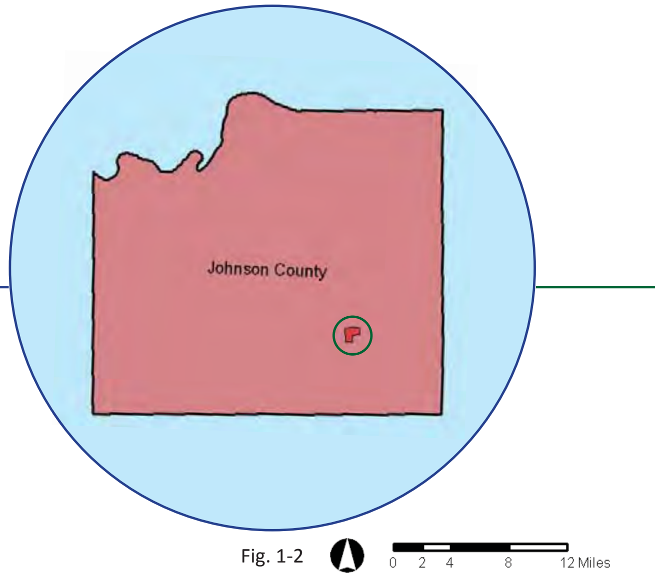


Fig. 1-2

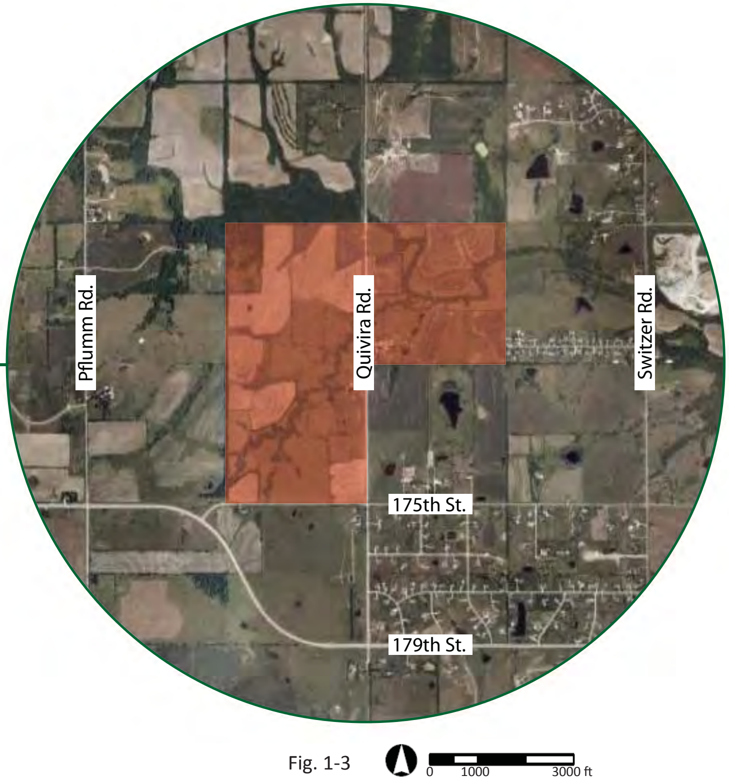


Fig. 1-3

The site is comprised of 480 acres of farmland, riparian corridors, wetlands, and natural open space in Overland Park, Johnson County, Kansas near the intersection of Quivira Road and 175th Street. 160 acres lie on the east side of Quivira, while the remaining 320 acres lie on the west side of Quivira. (See, Figs. 1-1, 1-2, and 1-3).

Dilemma and Thesis

Dilemma

Johnson County, Kansas covers 477 square miles and is home to more than half a million residents, yet lacks any destinations that create a sense of character or identity for any of its nineteen incorporated cities. While several districts on the Missouri side of the state line – most notably the Country Club Plaza, Brookside, and Westport – serve as major centers of activity that feature a rich mix of retail, commercial, entertainment, and residential uses, the largely suburban form of Johnson County is defined more by its lack of such places than anything else.

Compounding matters, prevailing development patterns in Johnson County follow conventional design standards that separate people from nature and from each other. As the low-density developments of Overland Park continue to expand southward, more and more of the city's residents find themselves living in a vast suburban landscape devoid of public open space and where there are no centers of activity where they can have their day-to-day needs met without driving from one separate location to the next.

While the task of creating a single core for the county is an unrealistic one given the low population density and expansive area of land already developed, a more appropriate and practical solution does exist. By taking advantage of suburban infill sites, new and unique places could serve as regional or local nodes of activity, providing a new way of living for residents and visitors alike.

A 480-acre site in southern Overland Park near the intersection of 175th Street and Quivira Road that is slated for development presents an opportunity for the creation of just such a place. However, the challenges associated with the project are not insignificant. The site and context for the project pose a number of challenges, the most pressing of which are varying topography, the presence of a flood plain and several riparian corridors and ponds (including land classified as wetlands), the likelihood of the expansion of a road that currently passes through the property from north to south, the planned extension of a second road through the property from east to west, and the presence of conventional residential developments and schools immediately adjacent to the project site.

The question is how a new project at the site can be designed to best serve current and future residents of southern Overland Park while providing a model for future growth in the area and addressing the opportunities and challenges posed by the natural, regulatory, and man-made conditions that impact the site.

Thesis

A traditional neighborhood with a rich mix of land uses can serve as a center of activity for southern Overland Park through the implementation of creative design principles that use the conservation and rehabilitation of natural systems as the framework for a design that integrates the project seamlessly with the wider community, creates a dense permanent residential presence, and provides opportunities for social interaction, recreation, civic life, entertainment, dining, shopping, and employment.

The ultimate goal of this project goes beyond merely developing a design that physically fits the various program elements into the site or maximizes the number of residential lots or retail square footage. Instead, it represents an effort to create a project that departs from prevailing development patterns that simply impose a design on the landscape with little if any regard for the existing natural systems. To that end, the design should be shaped as much by natural conditions at the site as it is by program requirements. It should integrate the natural and man-made environments into a cohesive system that maximizes the potential of both.

Equally important is the relationship between the project and the land uses that come into contact with it - the roads, schools, housing developments, and other land uses that affect and will be affected by the design of the project. A central goal of the project is to create a scheme that directly engages adjacent land uses rather than one that turns its back on everything beyond its own property line. Adjacent land uses should therefore have a direct impact on the project's program and the form of its design to ensure as seamless an interface as possible.

Discussing the complex and daunting challenge of reconciling the world's twin crises of energy supply and climate change, John Gardner, the founder of the nonprofit advocacy organization Common Cause, reframed the issues as "a series of great opportunities disguised as insoluble problems." (Friedman 2008, 82). Applying that same philosophy to the world of landscape architecture requires a significant change in perspective, away from conventional design standards that tend to treat natural systems and adjacent land uses as barriers to development and toward a new approach that treats them instead as opportunities for creative design solutions that seek to include them as integral components of the overall project. For purposes of this project, existing conditions at the site should therefore be viewed primarily in terms of the opportunities they create, with program elements and design strategies flowing from those opportunities.

Project Goals and Objectives

The purpose of the goals and objectives is to establish a series of tangible design criteria drawn from the more general abstract, dilemma and thesis, and philosophy. The goals and objectives are the guiding principles for the entire project and influence everything from the earliest stages of research to the most minute design decisions.

Goals set forth the ultimate results intended to be achieved through the project and are the broadest principles addressed. If the abstract, dilemma and thesis, and philosophy form the foundation of the project, then the goals constitute the frame that will support everything else.

Objectives are the general design principles geared toward achieving the goals. They represent a narrower level of refinement but do not address specific design strategies. Some goals have multiple objectives because more than one design principle is applicable.

Concepts are specific design components and parameters intended to achieve the objectives. The physical design of the project itself begins to take shape at the conceptual level. At that point in the process, decisions must be made regarding dimensions, quantities, areas, and spatial relationships.

Finally, problems are the challenges identified after considering the concepts and program in light of the inventory and analysis and the precedent studies. Problems are specific issues that the design must address if the goals and objectives are to be achieved. The solutions developed in response to the problems are what make the design unique and whole. They cannot simply be gleaned from a set of standards or codes, but must instead be created on a case-by-case basis as deemed appropriate under the circumstances.

Goal 1:	Create conditions that foster a sense of community
Objective 1a:	Maintain close spatial relationships between buildings and between buildings and pedestrian paths
Concept 1a:	Short building setbacks, alleys with rear-loaded garages, narrow lots
Problem 1a:	Topography can disrupt spatial relationships
Objective 1b:	Create physical connections throughout project site
Concept 1b:	Streets, sidewalks, and trails to create a permeable network of vehicular and pedestrian movement
Problem 1b:	Stream corridors and arterial roads interrupt potential paths of travel
Goal 2:	Create center of activity for southern Overland Park
Objective 2a:	Integrate project with adjacent land uses
Concept 2a:	Tie in to adjacent streets, sidewalks, trails, and open space
Problem 2a:	Arterial streets adjacent to and through site; Limited number of connection opportunities to adjacent sites
Objective 2b:	Provide activities for residents of site and those of wider community
Concept 2b:	Include recreational, entertainment, dining, shopping, civic uses, and employment
Problem 2b:	Limited space for parking; Increased traffic could hamper connectivity
Goal 3:	Reconnect people with nature
Objective 3:	Set aside public open space within project
Concept 3:	Create variety of public open spaces and connect them to each other and to regional trail system
Problem 3:	Fragmentation of site caused by streets, streams, and wetlands
Goal 4:	Reduce people's reliance on motor vehicles
Objective 4:	Encourage non-vehicular travel
Concept 4:	See Concepts 1b and 2b
Problem 4:	See Problems 1b and 2b
Goal 5:	Minimize environmental disturbances
Objective 5:	Protect landform and natural systems to the extent practical
Concept 5:	Cluster development, preserve open spaces, protect and utilize existing drainage channels, and avoid unnecessary earthwork
Problem 5:	Varying topography makes application of traditional neighborhood design principles challenging
Goal 6:	Have a positive influence on future growth in the Kansas City metro area
Objective 6:	Provide a new model for future growth in the Kansas City metro area
Concept 6:	Implement sound traditional neighborhood design principles to create a model community
Problem 6:	See limitations noted in Problems 1-4

Inventory and Analysis

Introduction and Methodology

The inventory and analysis focuses on three scales: (1) Regional; (2) Local; and (3) Site. (See, Fig. 2-0). By examining all three scales in depth, the goal is to understand a broad range of factors that are likely to affect the program and design. The program and design can, in turn, respond to those factors so the project achieves its goals and objectives.

Because a primary goal of the project is to serve as a local or regional center of activity, the inventory and analysis begins at the regional scale. The topics for the regional inventory and analysis were selected based primarily on their importance to the project's broader goals. Population and municipal growth trends are particularly significant because they indicate opportunities for harnessing that growth. A look at other regional centers of activity is also undertaken to better understand the project's context.

The local scale is the next scale examined because several issues warrant attention on a more concentrated level. Because local and regional issues often overlap, there is not always a distinct separation between the two scales. The topics for the local inventory and analysis were selected based on their impact on the site, particularly with regard to transportation issues and the influences of nearby existing and planned development. Physical connectivity is also a major focus of the analysis at the local scale.

The inventory and analysis conducted at the regional and local scales is most instructive for formulating broad program components and developing general design concepts. Connectivity – by streets and trails – is also an important element at those scales.

Finally, the site itself is examined. The physiography, climate, and natural systems of the site exist alongside the man-made conditions and regulatory issues to form more specific opportunities and constraints that affect the project program and design. Vulnerability of the existing environment and suitability of the land for particular program elements were the two most important considerations that guided the selection of issues for the site-specific inventory and analysis.

Regional Scale

Bi-State Kansas City Regional Context

Johnson County, Kansas is one of nine counties comprising the bi-state Kansas City region as defined by the Mid-America Regional Council, an association of city and county governments that serves as the region's planning organization. (See, Figs. 2-1, 2-2, and 2-3 for relationship of site to MARC boundaries). The bi-state Kansas City region covers an area of 4,423 square miles, includes 120 cities, and had a combined population of 1,850,644 people in 2006. (Table 2-1).

County Populations (2006 est.)

Leavenworth	73,628
Wyandotte	155,509
Johnson	516,731
Miami	30,900
Platte	83,061
Clay	206,957
Jackson	664,078
Cass	95,781
Ray	23,999

County Size (square miles)

Leavenworth	463
Wyandotte	151
Johnson	477
Miami	590
Platte	427
Clay	409
Jackson	616
Cass	703
Ray	570

Table 2-1 County Populations (2006 est.)
(U.S. Census Bureau 2008)

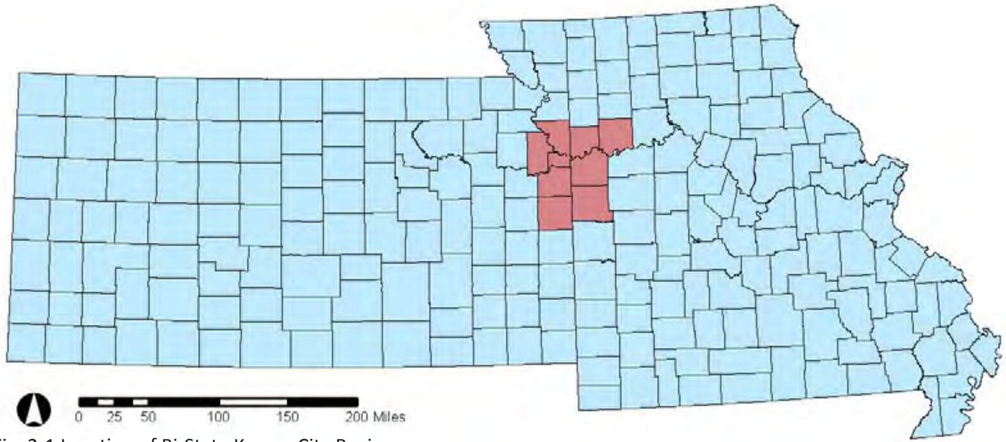


Fig. 2-1 Location of Bi-State Kansas City Region
(Adapted from MARC 2008)

Fig. 2-2 Counties of Bi-State Kansas City Region
(Adapted from MARC 2008)

Fig. 2-3 Site Location
Adapted from MARC 2008

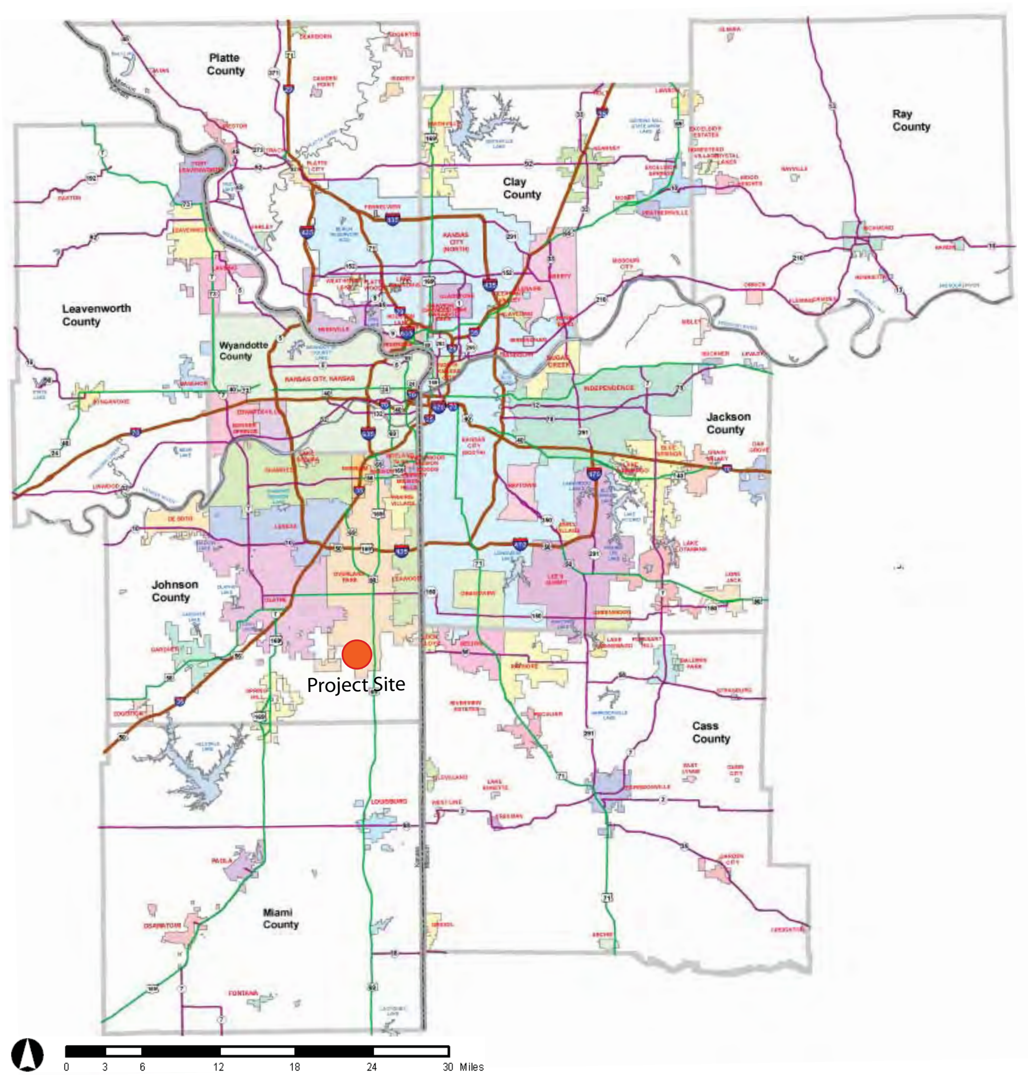


Fig. 2-4 Cities of the Bi-State Kansas City Region
(Adapted from MARC 2008)

Cities in Bi-State Kansas City Region

The largest cities in the bi-state Kansas City region by size and population are Kansas City and Independence in Missouri and Kansas City, Shawnee, Lenexa, Olathe, and Overland Park in Kansas. (Table 2-2). The project site itself is located in southern Overland Park. (See, Fig. 2-4).

City Populations:

Kansas City, Missouri	447,306
Independence, Missouri	110,704
Kansas City, Kansas	146,867
Shawnee, Kansas	59,252
Lenexa, Kansas	43,434
Olathe, Kansas	118,034
Overland Park, Kansas	167,500

Table 2-2 City Populations (2008)
(U.S. Census Bureau 2008)

Regional Highways

The major highways serving the region are Interstates 35, 70, 635, 670, and 470 and Highways 69, 169, 10, 50, 71, and 24. The project site is approximately two miles west of Highway 69 and five and a half miles east of Highway 169, both of which serve as major corridors to the north. (See, Fig. 2-5).

Although the project site is not immediately adjacent to a highway, its proximity to Highways 69 and 169 provides access to and from the entire metropolitan area and beyond. As a result of its location, the project site is not appropriate for development that relies on high volumes of drive-by traffic. It is better suited for program elements that serve the needs of a local clientele or that can serve as a destination that will attract users from beyond the local area.

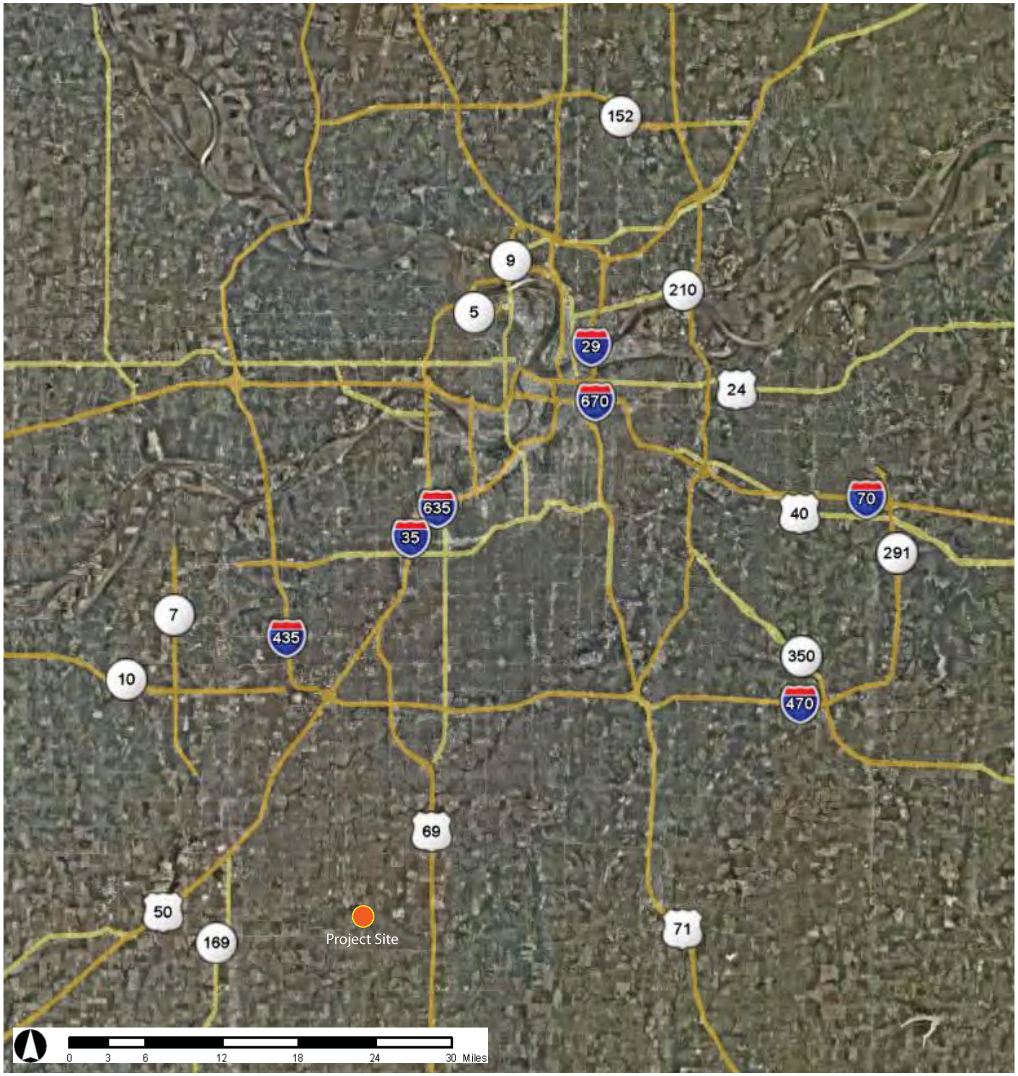


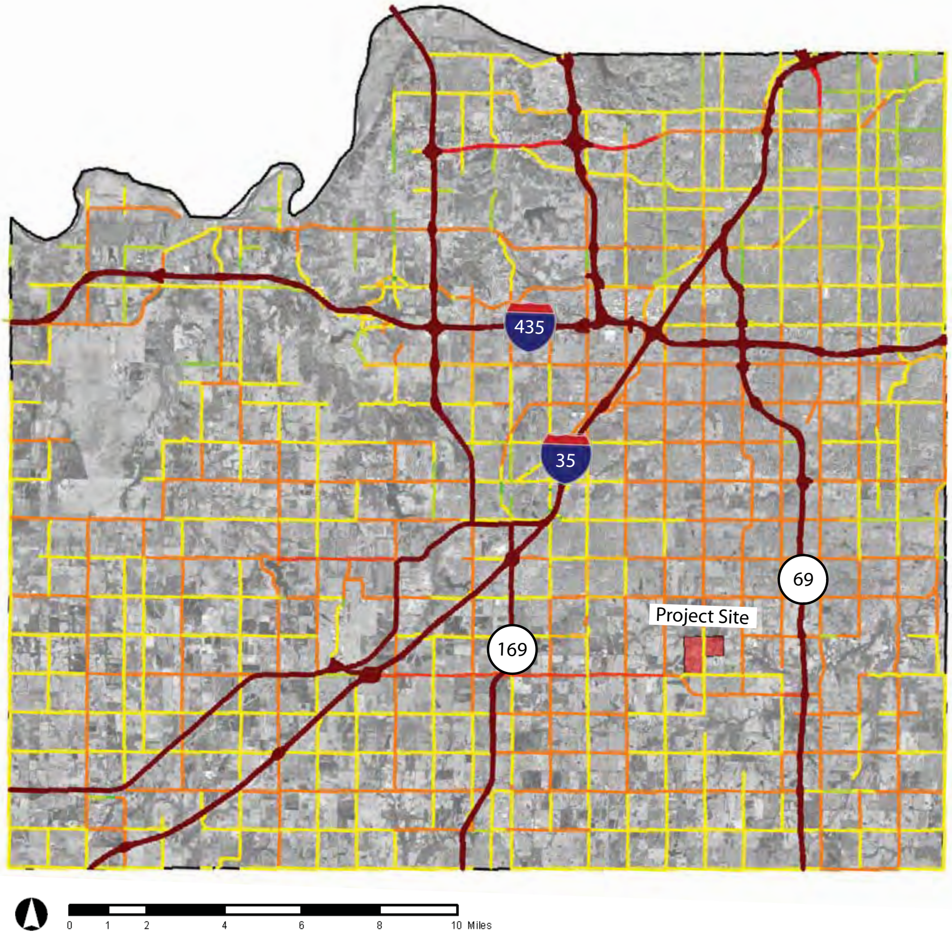
Fig. 2-5 Highways of the Bi-State Kansas City Region
(Adapted from Google Earth 2008)

Major Roads and Highways

Interstate 435 serves as the primary east-west thoroughfare through Johnson County and also provides a major north-south corridor. Interstates 35 and Highways 69 and 169 are the county's other major north-south thoroughfares.

Arterial streets set apart at one-mile intervals - generally following section lines - establish the dominant traffic grid for the county. Because the land between arterials is generally characterized by collector and local streets in random arrangements, it is generally impractical to travel through such areas from one arterial to another. (See, Fig. 2-6).

The county's grid system of streets creates ample routes of access to and from the project site, but also creates conditions that threaten to isolate the project. The design should therefore include elements that ensure multiple points of access into the site, thus making it more permeable than existing development in the county.



Speed Limit (mph)

15 — 20 — 25 — 30 — 35 — 40 — 45 — 50 — 55 — Highway

Fig. 2-6 Major Roads of Johnson County
(Adapted from DASC 2008 and MARC 2008)

Population Changes

Population trends in the bi-state Kansas City region indicate declining populations not just in areas closest to the region's urban core, but even well into the older portions of Kansas City's southern suburbs such as Overland Park. That same data indicates dramatic population growth in southern Overland Park from 1980 to 2000, by which time that area had by far the greatest population increase in the region. (See, Fig. 2-7).

Johnson County had a population of 451,479 in 2000, the last time a census was conducted. From 2006 to 2007, the U.S. Census Bureau estimates that Johnson County experienced a population growth of 16.6%, giving it an estimated population of 538,000 as of March of 2008. (U.S. Census Bureau 2008; Roberts 2008). The county is expected to become the most populous county in the Kansas City metropolitan area by 2023. Its projected population in 2033 is 783,000. (Roberts 2008).

Within a five-mile radius of the project site, the population nearly doubled between 2000 and 2007, from 58,730 to 100,852. The population in the same area is expected to grow by an annual rate of 3.58% from 2007 to 2012, more than five-and-a-half times the State of Kansas average. (STDBonline 2008).

Population trends in the bi-state Kansas City region clearly indicate the greatest population increases south of Interstate 435 in Johnson County over a twenty-year period, a trend that became even more pronounced from 1990 to 2000. (See, Fig. 2-8).

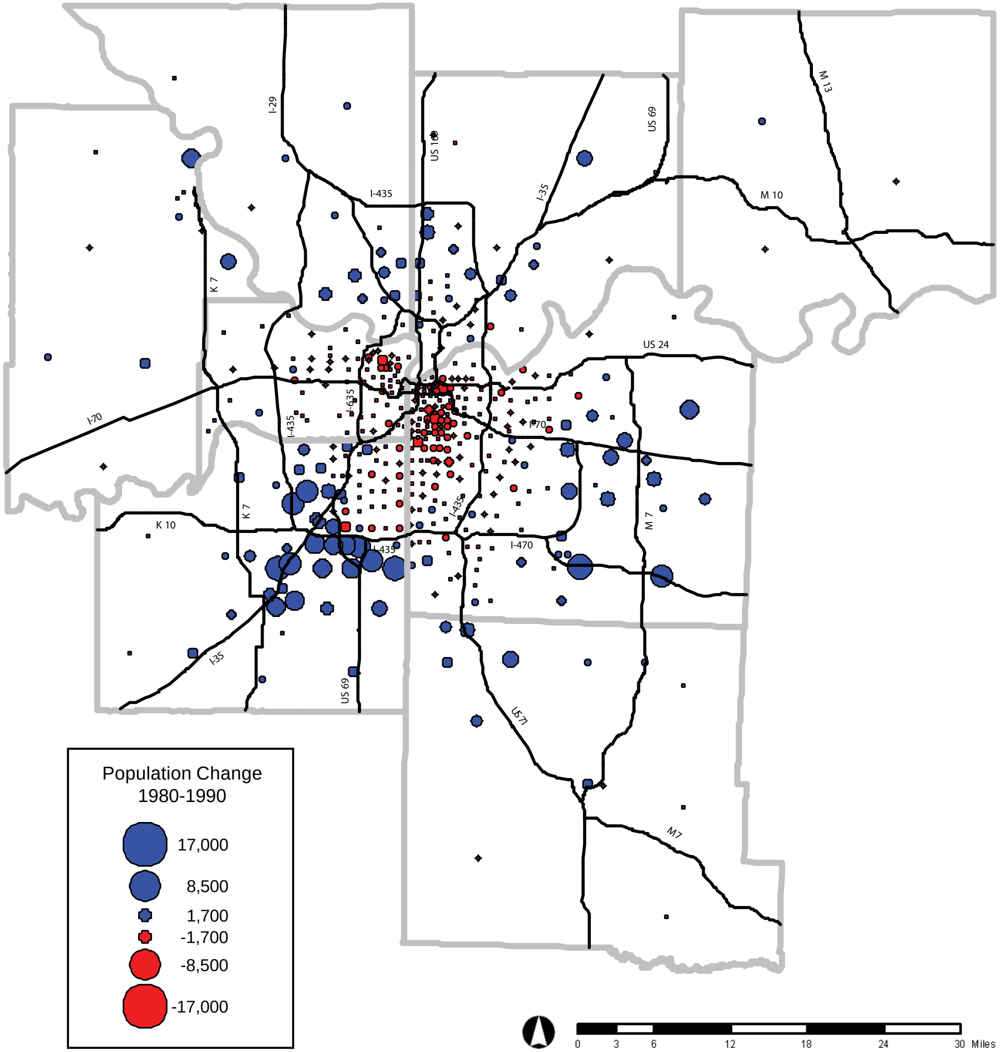


Fig. 2-7 Regional Population Change 1980-1990
(Adapted from MARC 2008)

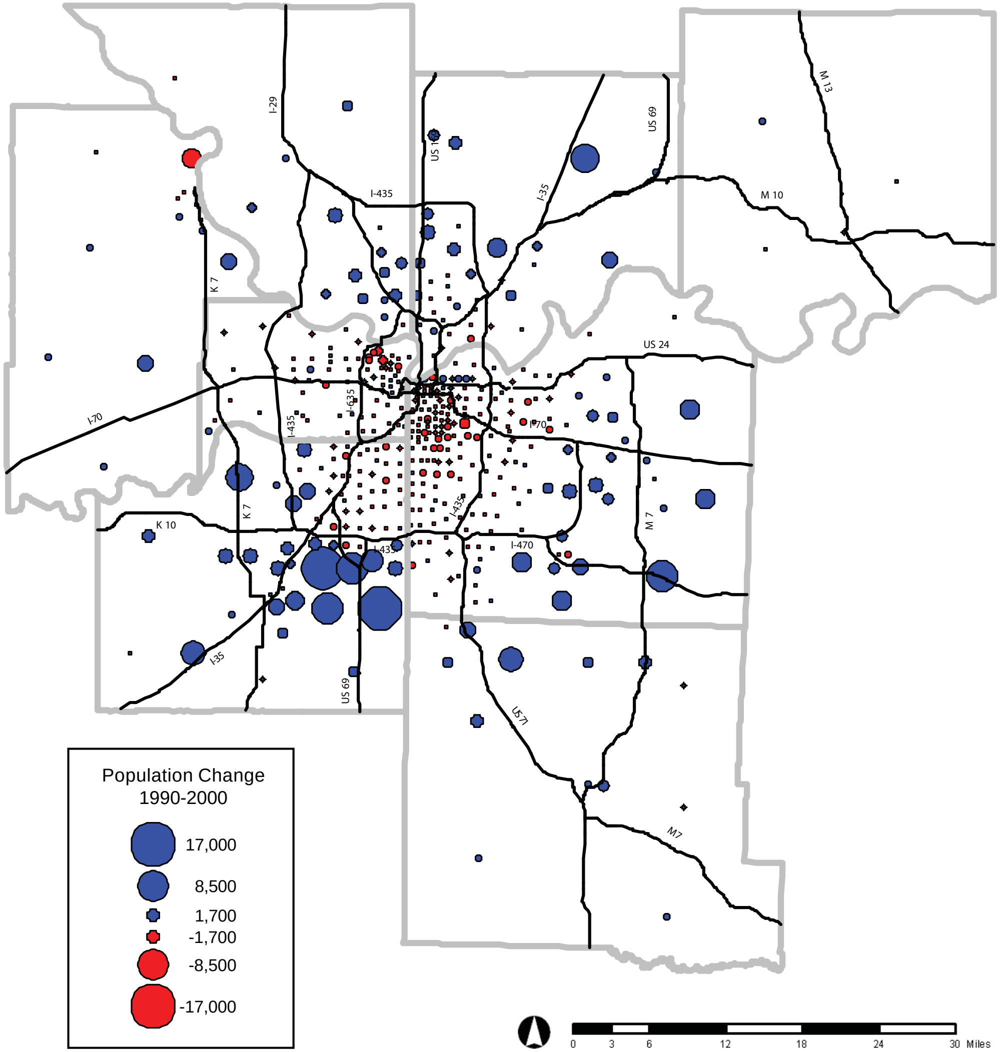


Fig. 2-8 Regional Population Change 1990-2000
(Adapted from MARC 2008)

Because the project site is located directly in the path of the population expansion in Johnson County, it is well positioned to take advantage of existing and future population increases in the area. An appropriately programmed project can therefore count on a future influx of potential users from the local area rather than relying on strategies geared toward attracting users from afar.

Employment Changes

Closely paralleling population trends in the region, job losses from 1970-2000 were greatest in the urban core and in western Jackson County, while job growth was greatest in Johnson County, particularly south of Interstate 435 and east of Interstate 35. (See, Fig. 2-9)

As of March of 2008, Johnson County created 10,000 jobs annually and is expected to add 195,000 jobs during the next 25 years. By 2033, the county is expected to employ 650,000 people, making it the region's largest employment center. (Roberts 2008).

The location of the project site near such an enormous increase in job creation once again creates opportunities to take advantage of nearby growth. The potential exists not only for the creation of housing at the project site for employees of new jobs in the area, but also the creation of new employment opportunities on the project site itself.

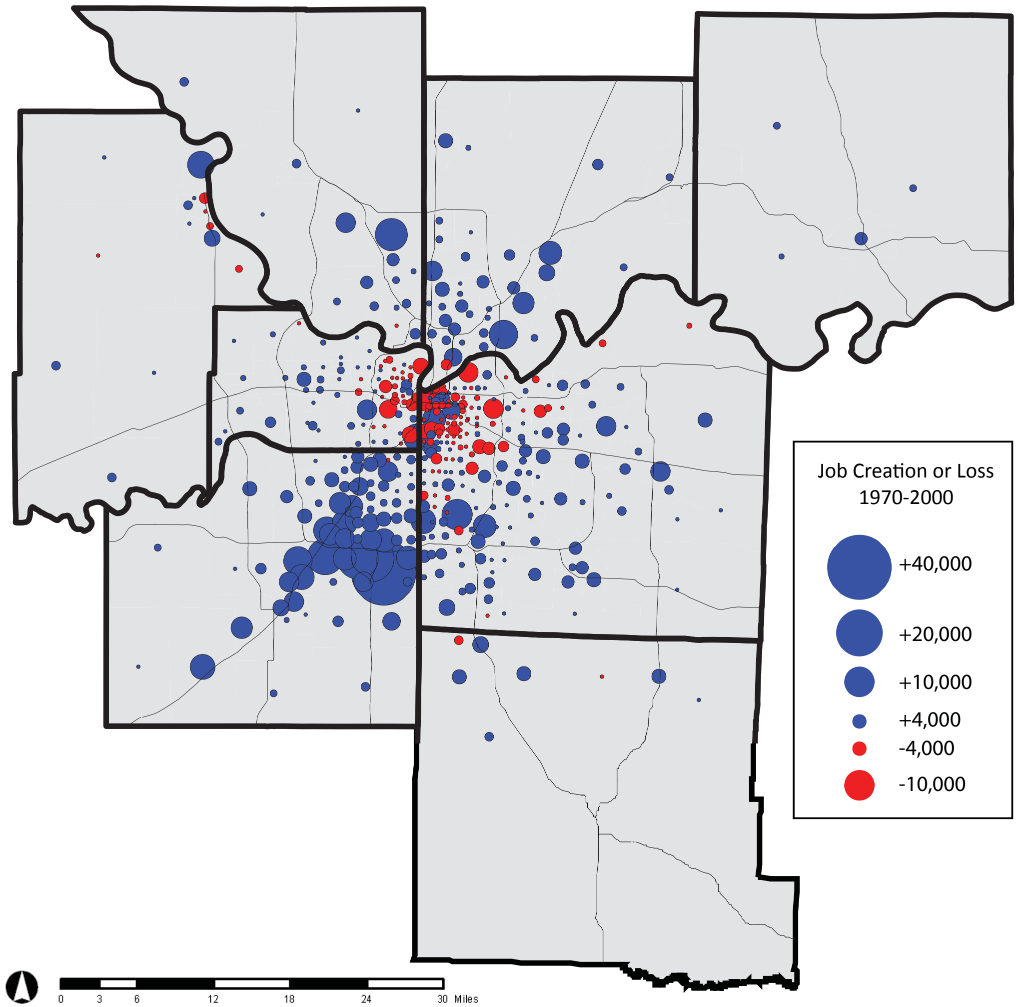


Fig. 2-9 Regional Job Creation and Loss 1970-2000
(Adapted from MARC 2008)

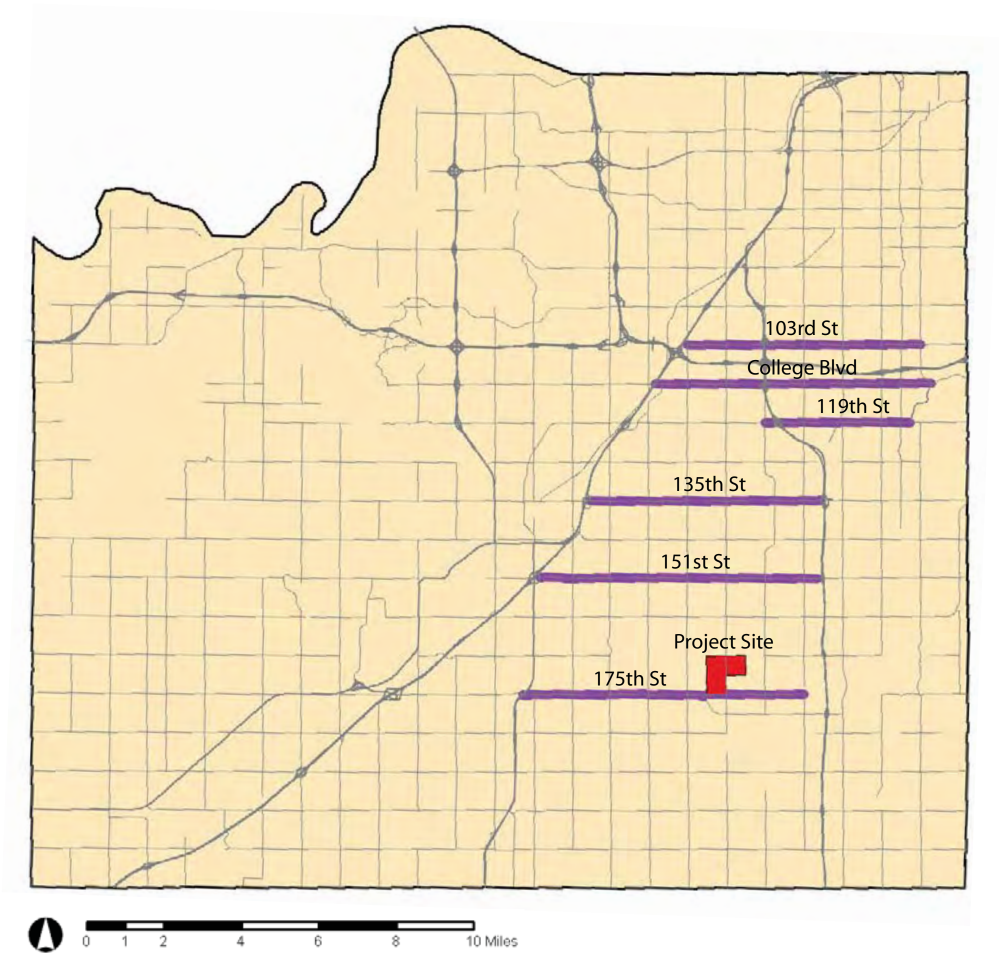


Fig. 2-10 Johnson County Growth Corridors
(Adapted from Johnson County 2008)

Johnson County Growth Corridors

According to the Greater Kansas City Chamber of Commerce, recent growth in Johnson County began along the 103rd Street corridor, then progressed south to College Avenue, 103rd Street, 119th Street, 135th Street, and 151st Street. Today 175th Street - which serves as the southern boundary of the project site - is viewed as the next major growth corridor in the region. (Roberts 2008).

The project site is ideally located to take advantage of anticipated growth by fulfilling the needs of area residents and providing housing for people drawn to the area as development accelerates. So while the project is not close enough to a highway to draw passersby, it is in an excellent position to attract potential users travelling on 175th Street. The design should therefore include elements geared toward attracting those potential users. (See, Fig. 2-10).

Expansion of Cities in Johnson County

The expansion of city boundaries in Johnson County is closely correlated with population and employment trends in the region, and also follows the southern movement of major growth corridors in Johnson County.

The cities of Johnson County that were not bound on all sides by other municipalities in 1978 have experienced significant growth since then. While Shawnee and Lenexa grew to their maximum extent within approximately twenty years, Olathe has continued to grow at a moderate pace and Overland Park has expanded rapidly. (See, Fig. 2-11). In fact, the project site was not incorporated into Overland Park until 2008 during a particularly large expansion of the city. (Johnson County 2008). As with population growth and job creation trends, the project site is directly in the path of the expansion of Overland Park. As the city continues to grow southward, appropriately programmed development at the project site is well positioned to take advantage of that growth. While the project may sit in relative isolation in its early stages, ultimately it is likely to become completely surrounded by suburban development as Overland Park expands. A long-term outlook should is therefore an important component of the project programming and design phases.

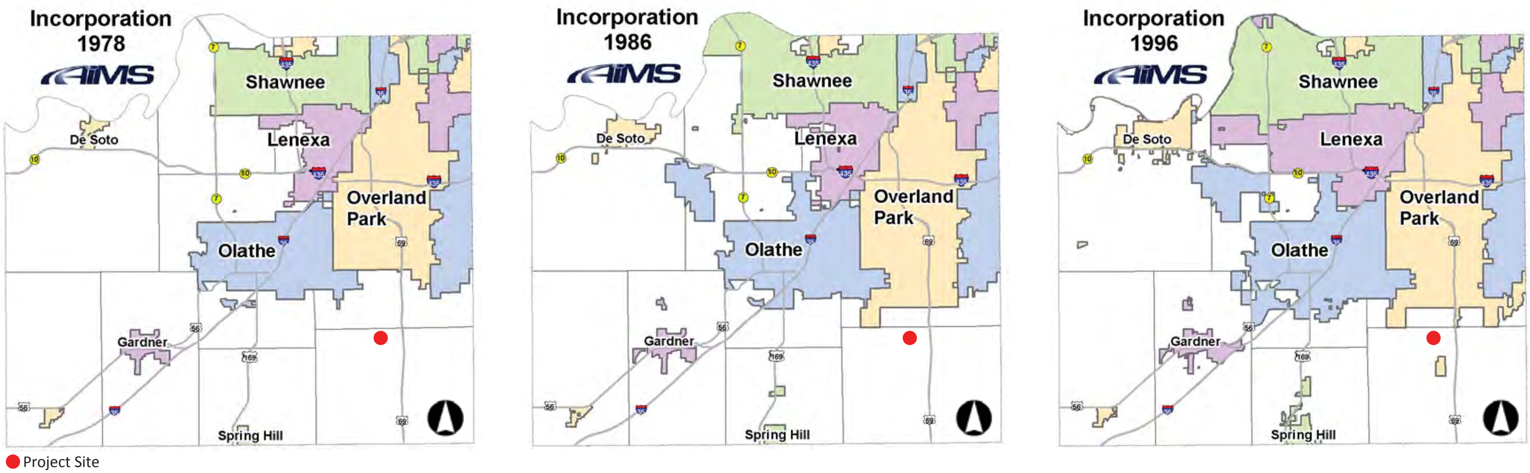
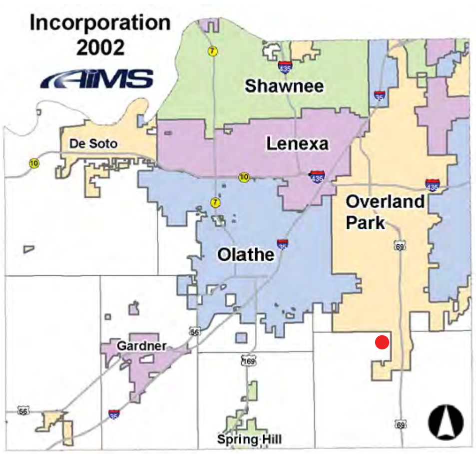
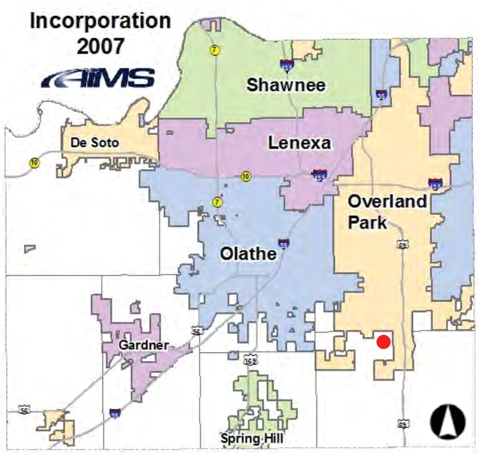


Fig. 2-11 City Expansion Within Johnson County 1978-current (Adapted from Johnson County 2008 - not to scale


Incorporation 2002
AIMS
Shawnee
De Soto
Lenexa
Overland Park
Olathe
Gardner
Spring Hill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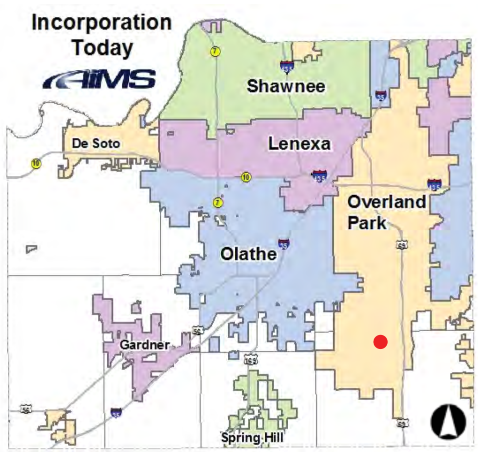
Overland Park
Olathe
Gardner
Spring Hill


Incorporation Today
AIMS
Shawnee
De Soto
Lenexa
Overland Park
Olathe
Gardner
Spring Hill

Trails and Parks

MetroGreen is a proposed 1,144-mile network of interconnected public and private open spaces, greenways, and trails linking the seven counties in the bi-state Kansas City region. (See, Fig. 2-12). The Metrogreen project was inspired by the "parkways and boulevards" concept of the 1894 Kessler Plan for Kansas City, Missouri and will eventually include 75 new corridors to link the region together. (MARC 2008).

One of the proposed segments of the MetroGreen system passes directly through the property site, along Coffee Creek. (See, Figs. 2-13 and 2-14). Some of the few segments of the system already built are just to the north of the project site. The potential therefore exists for using the MetroGreen system as a major amenity within the project site and for creating bicycle and pedestrian linkages between the project site and nearly the entire metropolitan area. Because a primary goal of the project is to create connections to the wider metro area, the placement and design of the MetroGreen trail system within the project site and the integration of that system with other program elements is an important consideration.

Johnson County has a number of its own trails and parks, many of which will eventually connect to the project site via the MetroGreen system. (See, Fig. 2-13). The combined system will connect nearby Black Bob and Heritage Parks to the Overland Park Arboretum and Botanical Gardens via a trail segment that passes directly through the project site. (See, Fig. 2-14). Combined, the county and MetroGreen systems will create extensive connections between the project site and the county as a whole. In addition to providing recreational and mobility opportunities to residents of the project, the network will also provide access to the project for people who live throughout Johnson County and beyond.

Fig. 2-12 MetroGreen Trail System Map
(Adapted from MARC 2008)

To take full advantage of the combined trail system, the design for the project should place a high priority on creating a network of trails for pedestrians and bicyclists within the site itself. It should also connect that internal trail system to the MetroGreen trail to ensure ease of movement between the internal trails and the MetroGreen trail system.

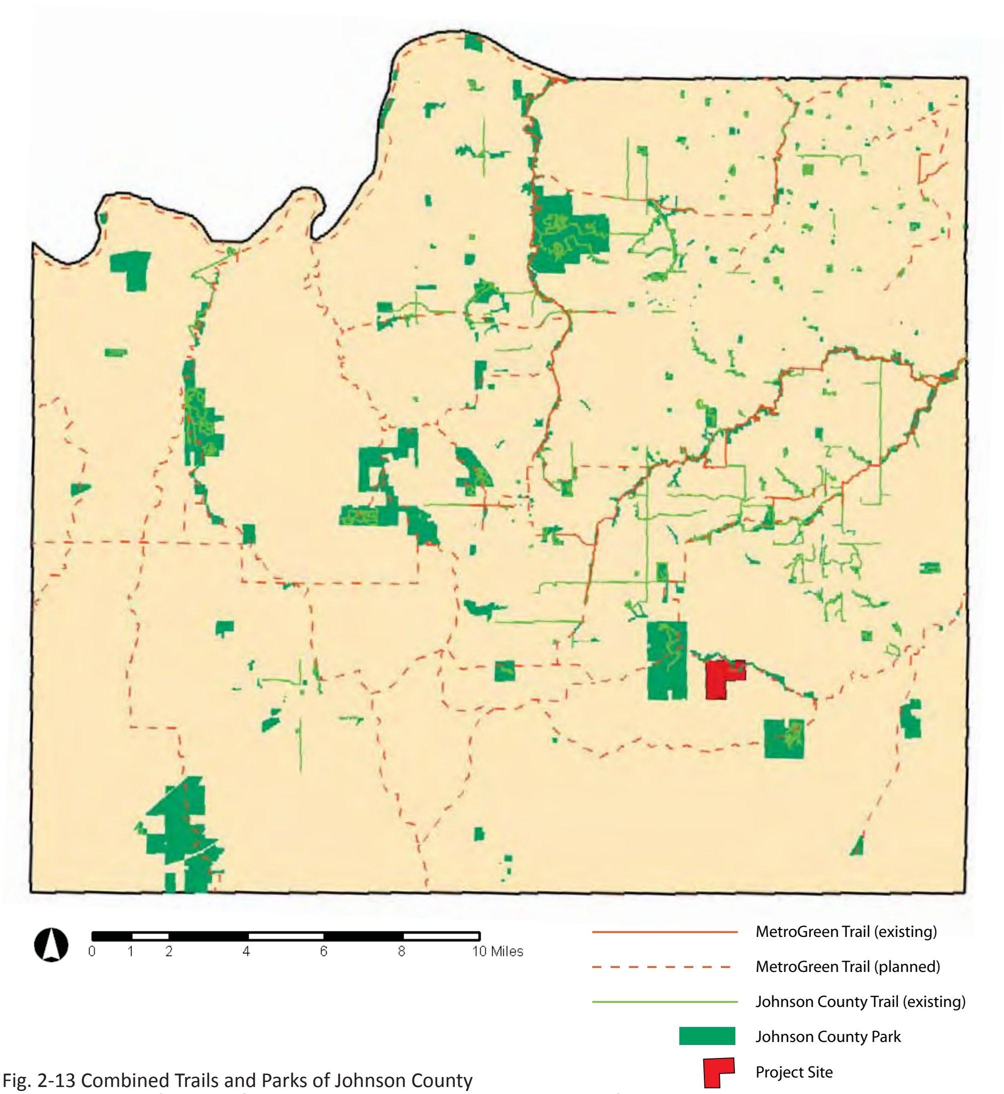


Fig. 2-13 Combined Trails and Parks of Johnson County
David Vogel 2008 (adapted from MARC 2008 and Johnson County 2008)

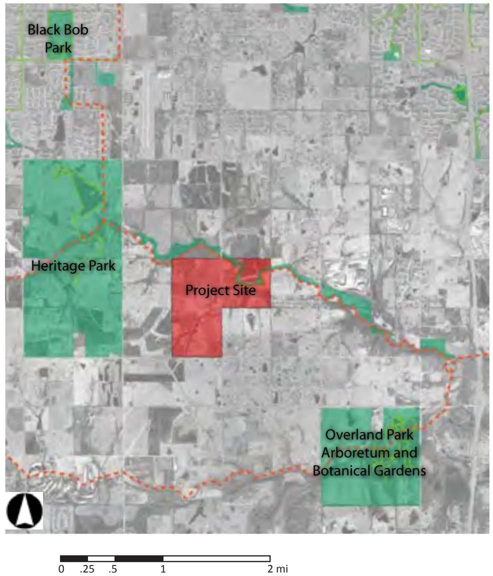


Fig. 2-14 Combined Trails and Parks Close-up
(Adapted from MARC 2008, Johnson County 2008, and DASC 2008)

Regional Centers

It would be a tall order to chart all the strip malls, big box stores, malls, and shopping and entertainment centers in the bi-state Kansas City region. However, it is useful to identify what might be termed "destination" centers in the region - centers that serve more than just a local draw by attracting visitors from a wider geographic area. Although there is no formal list of such destinations, eleven centers in particular are commonly referenced in resources published by entities such as the Mid-America Regional Council and the Greater Kansas City Chamber of Commerce. (See, Fig. 2-15).

The list of destination centers is by no means an attempt to categorize the centers by any particular criteria such as size, type, number of visitors, or program elements. It is strictly an illustration of the project site's proximity to existing (or in the case of Park Place, future) destination centers for purposes of evaluating whether the project site is an appropriate location for a development intended to serve as a node of activity both locally and beyond.

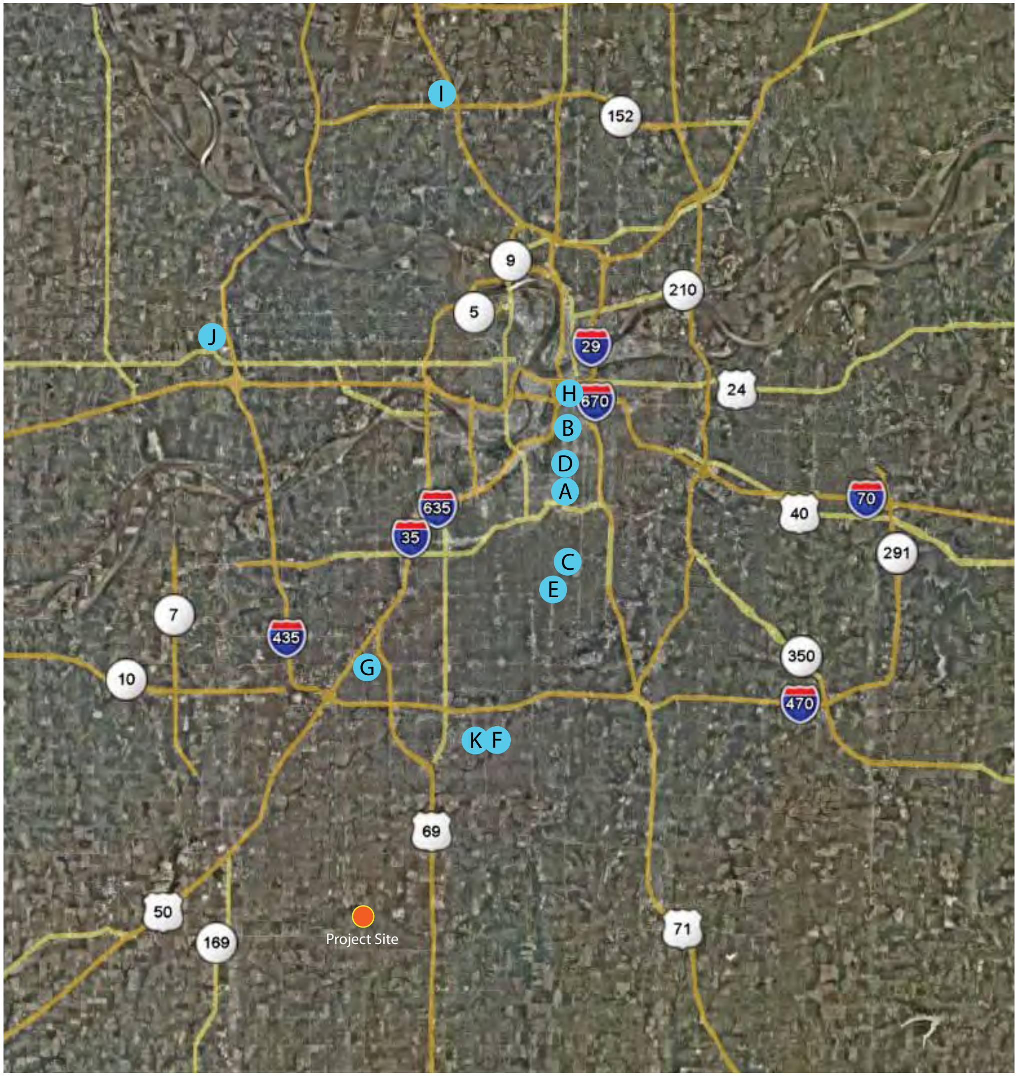


Fig. 2-15 Regional Centers of the Bi-State Kansas City Region
(Adapted from Google Earth 2008)

Map Legend
A Country Club Plaza
B Crown Center
C Brookside
D Westport
E Waldo
F Town Center Plaza
G Oak Park Mall
H Kansas City Power & Light District
I Zona Rosa
J Village West and Legends
K Park Place (future)

Of the eleven destinations selected for the list, six offer purely retail and entertainment uses and lack any connection to residential uses. Although the Country Club Plaza and the Kansas City Power and Light District have no residential component of their own, both are located in close proximity to residences (a huge amount of residences in the case of the Country Club Plaza). Brookside, Waldo, Zona Rosa, and Park Place are the only destination centers that actually exhibit the integration of residential and other land uses, though in the case of Park Place the arrangement might be better described as "proximate use" as opposed to mixed-use because residences are largely segregated from other components of the project.

The closest destination center to the project site is Park Place, which the suburban community of Leawood, Kansas hopes will become the downtown it never had. It is being built directly adjacent to Town Center Plaza, a retail and dining center that can be best characterized as a large indoor shopping mall turned inside out. The two projects are approximately ten miles northeast of the project site and are the only destination centers in the region south of Interstate 435. Their focus is major upscale national chain retailers and restaurants.

The proximity of Park Place and Town Center Plaza to the project site may place constraints on the types of retailers and restaurants that the project can expect to attract. Rather than large national retailers, the project would likely have a better chance of attracting smaller retailers and local restaurants.

The only destinations on the list that resemble anything like a traditional neighborhood design with a well-integrated mix of uses are Waldo and Brookside, nearly twenty miles northeast of the project site. That distance alone makes it extremely unlikely that they will compete with a development at the project site to any significant degree.

The complexities of determining precisely what kinds of businesses would be most attracted to the project site are not the subject of this inquiry. Instead, it is sufficient at this stage to conclude that the project site is remote enough from existing and future destination centers to make it a valid contender for becoming a destination center of its own. There is also no danger that the area is in danger of being saturated by traditional neighborhood design projects in the foreseeable future.

Local Scale

Local Points of Interest

Figure 2-16 illustrates the locations of several major features near the project site. The Blue Valley school district began construction of a high school south of the project site in the Spring of 2008. The high school will have a capacity of 1600 students and is scheduled to open for the 2010-2011 school year. A middle school on the same site has not yet been designed but is expected to open for the 2011-2012 school year. (Blue Valley School District 2008; See Figs. 2-17 and 2-18).

East of the project site, along the Highway 69 corridor, plans have been made for two new hospitals: The Providence Hospital at 179th and Highway 69, and the Shawnee Mission Hospital south of 159th Street between Antioch and Highway 69.

West of the project site, 1160-acre Heritage Park opened in 1981 and includes several lakes, a golf course, facilities for softball, football, and soccer, an equestrian area, an off-leash park for dogs, a trail system, and other recreational facilities. (Johnson County Park & Recreation District 2008).

The Overland Park Arboretum and Botanical Gardens occupy 300 acres southeast of the project site. 85 percent of the land is set aside for the preservation of natural native ecosystems, while

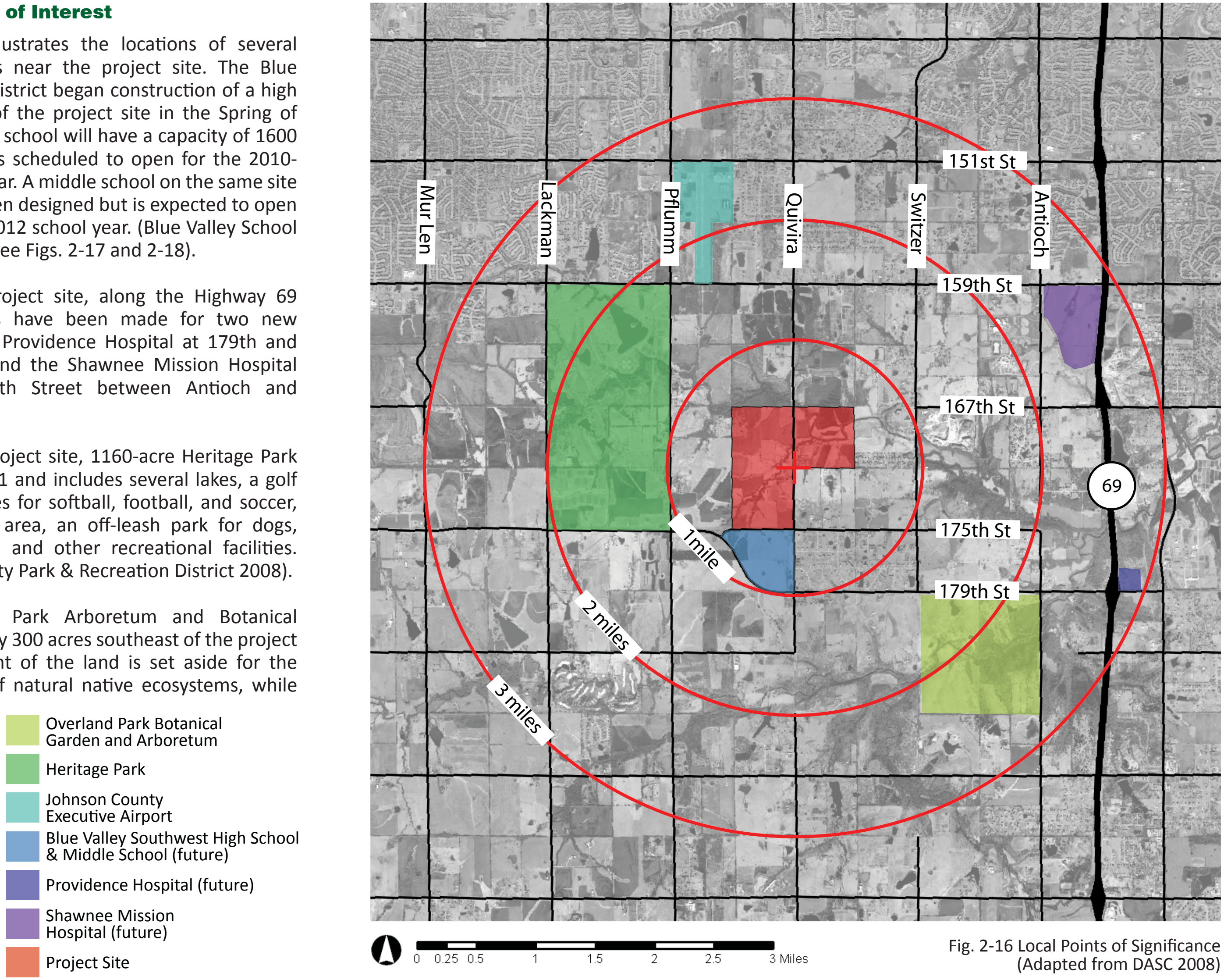


Fig. 2-16 Local Points of Significance (Adapted from DASC 2008)

Fig. 2-17

Fig. 2-18

Conceptual model and construction progress of Blue Valley Southwest High School (Blue Valley School District 2008)

Fig. 2-19

Fig. 2-20

Fig. 2-21

Scenes from the Johnson County Arboretum and Botanical Gardens (Overland Park, Kansas 2008)

the remaining 15 percent is dedicated to gardens, buildings, trails, and other uses. (Overland Park, Kansas 2008; See, Figs. 2-19, 2-20, and 2-21).

The Johnson County Executive Airport occupies 500 acres of land and has a single 4100-foot runway. Approximately 90,000 operations occur at the airport annually, a figure that is expected to increase to at least 114,000 as airport use increases with the growth of the county. (Johnson County Airport Commission 2008). Although the Federal Aviation Administration mandates height restrictions within a defined zone around the airport runway, the entire project site lies outside that zone and is therefore not subject to any height restrictions. (Johnson County 2008).

Because the hospitals and schools are yet to be built, the demand for housing for their work forces has not yet materialized. The project site is well situated to fulfill that demand when it does arise because the mixed-use nature of the project is ideally suited for accommodating the wide range of incomes represented by jobs in education and medical services. Everything from inexpensive apartments for secretaries to high-end single-family homes for physicians can be offered within the same project.

School age residents of the project will have convenient access to the middle school and high school immediately south of the site without the need for busing or extensive commuting. Many could actually be within walking distance. The project site is also close enough to Heritage Park and the Botanical Gardens to allow residents to access those amenities by walking or bicycling.

Heritage Park and the Arboretum and Botanical Gardens will both provide opportunities for recreation and education and should be linked to the project site with pedestrian and bicycle trails to reduce automobile use.

Nearby Residential Development

As Overland Park has steadily grown southward, conventional residential subdivision design has been the dominant pattern of development. The median home price within a five-mile radius of the project site was $243,521 in November 2007. The average household income in the same area at that time was $139,638. (STDBonline 2007). The local area of the project site exhibits a clear lack of housing options because of high housing prices. That trend corresponds closely with the high average income of households in the area, which demonstrates the lack of economic diversity among the area's residents. The opportunity to provide a broader range of housing options is therefore an element that an appropriately programmed project could take advantage of by fulfilling demand for a much wider range of housing.

Figure 2-22 identifies several residential subdivisions in the local area around the site, all of which feature only stand-alone single-family homes that are very close in size and price. Aside from the names on the entry signs, there is little to distinguish one subdivision from the others. Figures 2-23 through 2-61 are photographs from the thirteen subdivisions identified on the map that have already been built or are for which construction has begun.

A Coffee Creek Crossing
B Deer Valley
C Lakeshore Estates
D Stonegate Reserve
E Mill's Farm
F The Vineyard
G Polo Fields
H Stonebridge Court
I Wilshire Farms
J Wyngate
K Glad Acres Estates
L Chapel Hill
M 179th and Quivira (future)
N Summer Wood

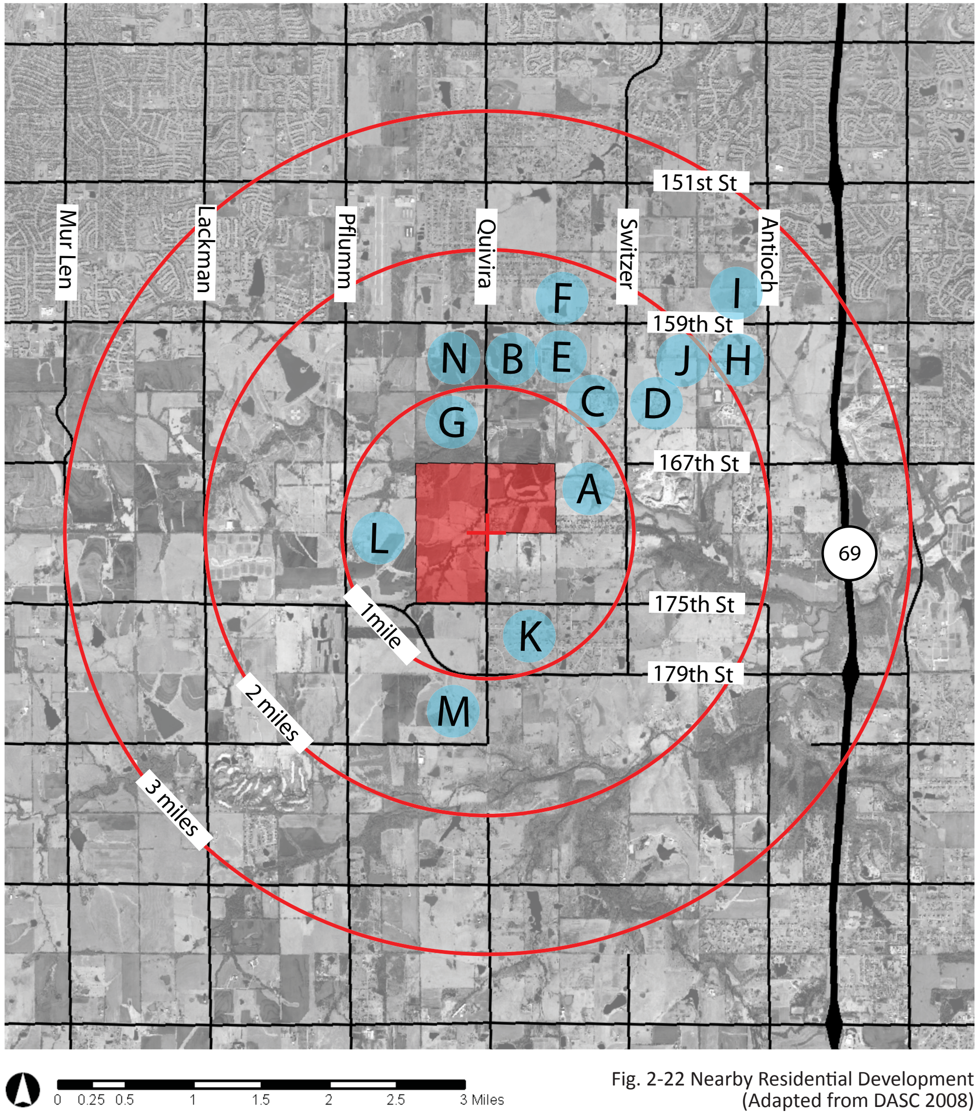


Fig. 2-22 Nearby Residential Development
(Adapted from DASC 2008)

Coffee Creek Crossing


Fig. 2-23


Fig. 2-24


Fig. 2-25

Deer Valley

Fig. 2-26


Fig. 2-27


Fig. 2-28

Lakeshore Estates

Fig. 2-29


Fig. 2-30

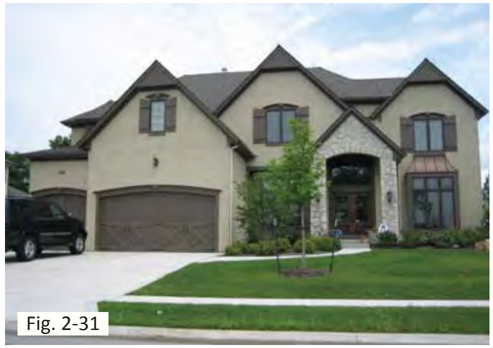


Fig. 2-31

Photos: David Vogel 2008

Stonegate Reserve

Fig. 2-32


Fig. 2-33


Fig. 2-34

Mills Farm

Fig. 2-35


Fig. 2-36


Fig. 2-37

The Vineyard

Fig. 2-38

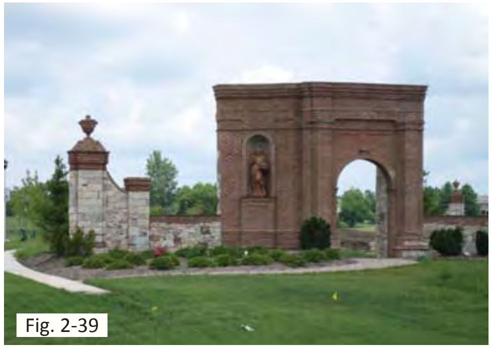


Fig. 2-39


Fig. 2-40

Photos: David Vogel 2008

Polo Fields

Fig. 2-41


Fig. 2-42

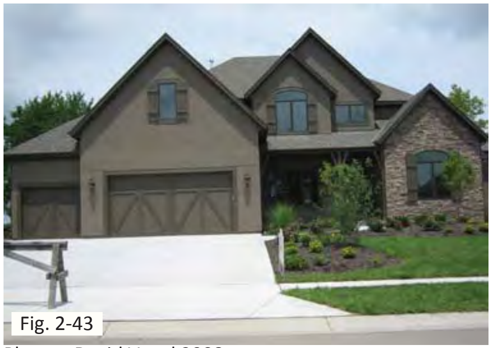


Fig. 2-43

Photos: David Vogel 2008

Stonebridge Court

Fig. 2-44


Fig. 2-45

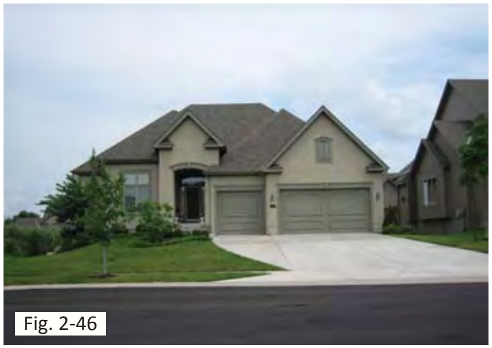


Fig. 2-46

Wilshire Farms

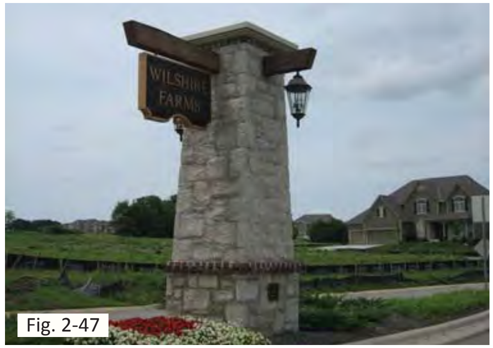


Fig. 2-47


Fig. 2-48


Fig. 2-49

Wyngate

Fig. 2-50


Fig. 2-51

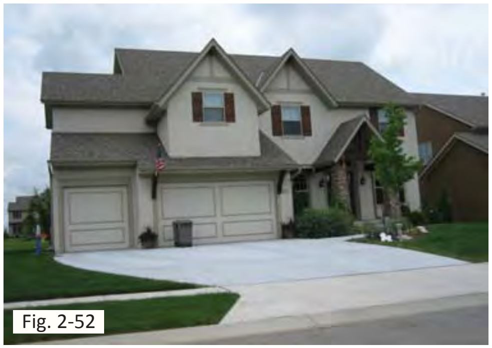


Fig. 2-52

Glad Acres

Fig. 2-53


Fig. 2-54


Fig. 2-55

Chapel Hill

Fig. 2-56


Fig. 2-57


Fig. 2-58

Photos: David Vogel 2008

Summer Wood


Fig. 2-59


Fig. 2-60


Fig. 2-61

Photos: David Vogel 2008

Among the numerous subdivisions near the project site, several frequent design trends emerge: (1) Grand formal entries with prominent signs, often with vegetated medians and sometimes with fountains; (2) Limited connections to adjacent land uses and roads; (3) Water features with fountains; (4) Wide collector streets beginning at the entries and connecting the (usually) narrower local streets; (5) Large setbacks between arterial roads and homes on the edges of the subdivision (often combined with vegetated berms as barriers); (6) Cul-de-sacs; (7) Private amenities such as pools and club houses; (8) A general lack of public open space or public recreational amenities; (9) Very low densities; (10) An extremely narrow range of housing sizes, styles, and price ranges; and (11) Large garages facing the street that often dominate the front of the homes.

The primary effect of the formal entries, long setbacks around the edges of the subdivisions, and the limited connectivity to adjacent streets and property uses is the creation of a strong sense of exclusivity. The predominance of cul-de-sacs reduces circulation options and contributes further to the impermeability of the projects. It is very likely that the designers of the subdivisions intended to create such an effect, but that approach is not appropriate for a project that seeks to invite people from beyond its boundaries into the site and to allow movement through the site.

Opportunities for recreation and social interaction are severely limited in the subdivisions surveyed because of a general lack of usable outdoor spaces and the focus on vehicular rather than pedestrian circulation. Even where sidewalks are present, the streetscape is typically fragmented by front-loaded driveways. The lack of play spaces for children results in the proliferation of private backyard playsets, making social interaction among children more difficult and less likely.

The limited range of housing types and prices results in a monoculture that threatens to define the entire area. As employment centers such as health care facilities and schools emerge, most employees will be forced to live elsewhere and commute significant differences if new housing options are not introduced to the area.

Finally, the subdivisions surveyed have no relationship to the land that creates a sense of authenticity or facilitates a connection to and appreciation of the natural systems. Where natural areas have been preserved, homes are typically sequestered from them and there has been little or no effort to provide access to them. Instead, stormwater retention ponds are often the closest thing to nature that most of the subdivisions have to offer, though even those typically include no design elements to facilitate their usability.

An opportunity clearly exists for creating an alternative to the prevailing development patterns. The programming and design sections of this report will address specific design solutions to create such an alternative. For now the important point to make is that the developments reviewed serve as excellent negative examples that can provide important lessons about how certain design components affect a project and the people who live there. A vastly different approach is necessary if the project is to achieve its goals and objectives.

Site Scale

History, Uses, and Infrastructure

The land comprising the project site is owned by the descendents of Alfonse Verhaeghe, a Belgian immigrant who came to the United States in 1906. Alfonse compiled the property over the course of twenty-nine years, beginning in 1918 with an 80-acre parcel he purchased from Joseph Ebeck for $9,600. (Fig. 2-62). Alfonse operated a "truck farm" by selling vegetables grown on the property from the back of a truck. In 1919, he constructed "hot beds" at the farm to grow starter plants, which he then sold to grocery stores and at the downtown Kansas City, Missouri market (which operated until 1979). He also raised cattle and hogs during the same period.

In 1937, during the Great Depression, Alfonse paid $2800 for an additional 80 acres of land, which he purchased from Bonnie and Vera Fae Williamson. (Fig. 2-63). The Hughes family sold Alfonse 160 acres of land in 1943 for $7000. Payment was made in silver dollars with no mortgage. (Fig. 2-64).

Alfonse purchased the fourth and final piece of land from the VanDaele family in 1947, a 160-acre parcel for which he paid $20,500. (Fig. 2-65). Again, he did not use a mortgage. Alfonse's two sons, Kamiel and Arthur, moved onto the property later that year and farmed the land for nearly five decades. Kamiel lived in a house on the east side of Quivira Road, while Arthur lived in a house across the street to the west.

Today the property is farmed by one of Kamiel Verheghe's sons. Both houses on the site remain occupied but are in generally poor condition. Each house sits in close proximity to numerous barns, sheds, and other small buildings, all of which are in need of maintenance. There are no buildings on the property aside from the two clusters near the center of the site. Private drives made of gravel connect the houses to Quivira Road; there are no paved roads on the property.

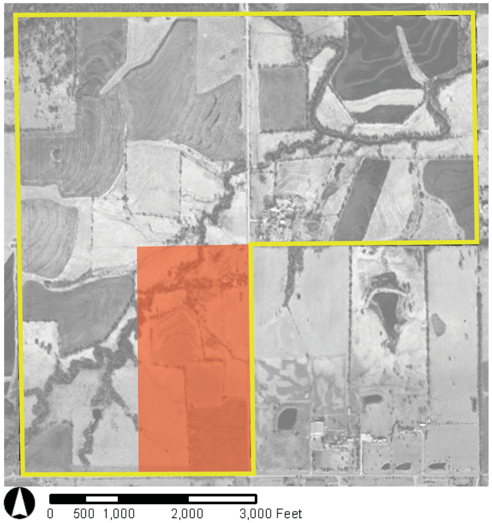


Fig. 2-62 1918 purchase (80 acres)

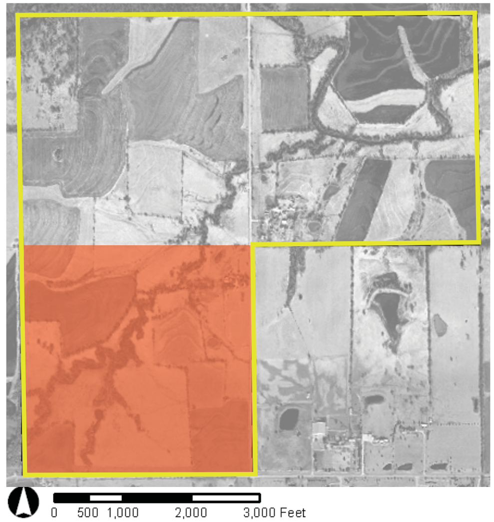


Fig. 2-63 1937 purchase (80 acres)

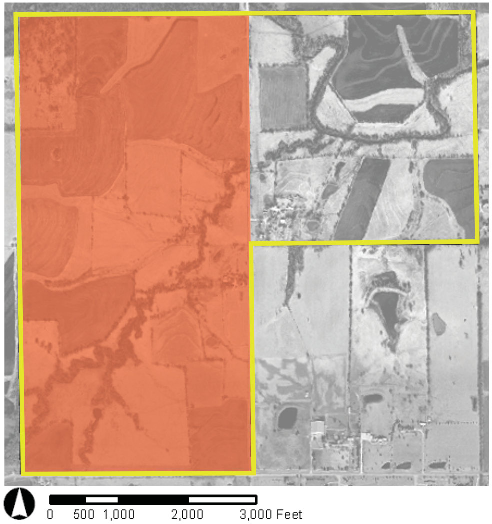


Fig. 2-64 1943 purchase (160 acres)

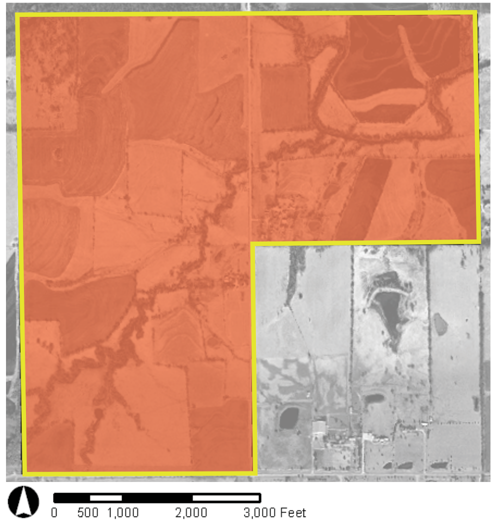


Fig. 2-65 1947 purchase (160 acres)

Maps: Adapted from DASC 2008

Fig. 2-66 Building locations

Figures 2-67 through 2-72 illustrate the various structures currently standing on the project site. Opportunities exist for renovating and converting the barns and houses into amenities for the project, though much work would need to be put into them to make them attractive and structurally sound. Most of the minor buildings have little or no value and should be razed. But even without retaining those minor buildings, the land itself and the history of its ownership and use could serve as a backdrop for the project to create a sense of authenticity that is severely lacking in the nearby developments previously reviewed. Preserving the genuine local context of the major buildings at the site, in combination with the preservation of the site's natural systems, could go a long way in creating a unique identity for the project.


Fig. 2-67

Buildings on east side of Quivira (Virtual Earth 2008)


Fig. 2-70

Buildings on west side of Quivira (Virtual Earth 2008)


Fig. 2-68

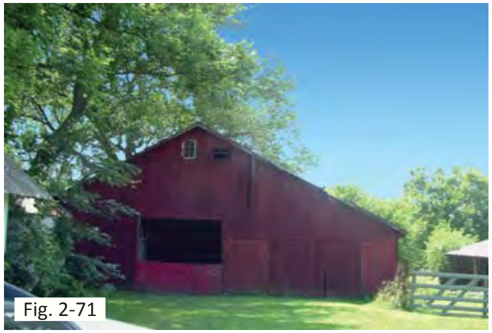


Fig. 2-71


Fig. 2-69

Buildings on east side of Quivira (Tony Sease 2008)


Fig. 2-72

Buildings on west side of Quivira (Tony Sease 2008)

Physiography

The project site is located in the Osage Cuestas ecoregion, which is characterized by a series of flat or gently rolling plains interrupted by east-facing ridges (or escarpments). (See, Fig. 2-73). Each escarpment is capped by limestone, while the slopes exhibit alternating layers of Pennsylvanian limestone and shale. The region features moist, silty clay loam soils that support a range of vegetation, from tallgrass prairie in the west to a mixture of tallgrass prairie and oak-hickory forests in the east.

The site is less than one mile from the division between the Osage Cuestas and the Wooded Osage Plains ecoregion, a transitional region stretching into Missouri. Although the Wooded Osage Plains has similar vegetation, it is characterized by denser soils and forests than the Osage Cuestas. (U.S. EPA 2008).

Because of its location on the eastern fringe of the Osage Cuestas ecoregion, the project site does not feature any of the cuestas and escarpments common to the west. Instead, the physiography is characterized by gentle rolling hills and relatively flat ground common in the area. The only rock outcroppings on the property are limited to the Coffee Creek stream corridor. As a result of the fairly gentle rolling nature of the landscape, there are no major physiographical constraints on development at the project site.

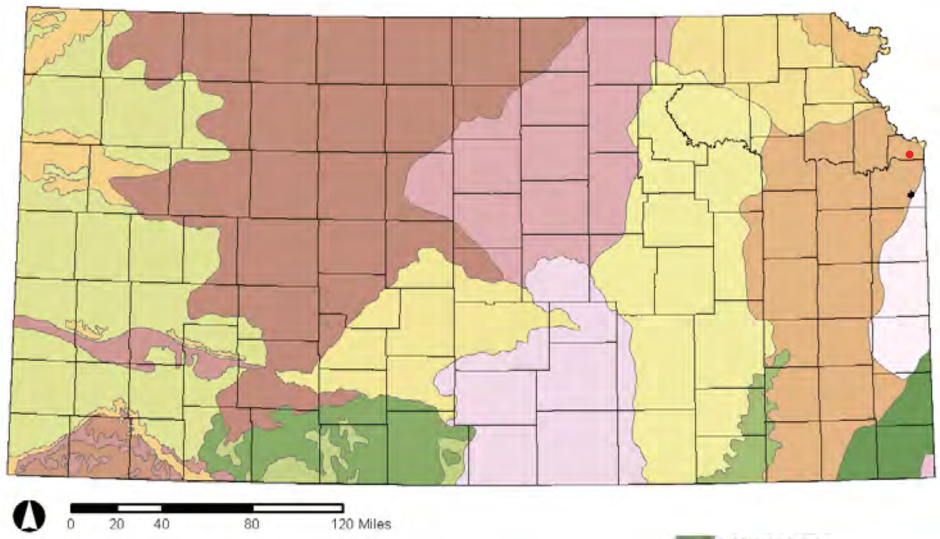


Fig. 2-73 Physiographic Regions of Kansas
(Adapted from DASC 2008)

Climate

The climate in Overland Park, Kansas is characterized by cold winters and hot summers. The hottest month of the year is July, with an average high temperature of 89.4 degrees, while the coldest month of the year is January, with an average high temperature of 38.3 degrees and an average low temperature of 19.9 degrees. Temperature fluctuations during a 24-hour period average 21 degrees during the summer and 19 degrees during the winter. (IDcide 2008). Even during the winter, it is not uncommon for temperatures to occasionally reach the 40s or 50s. (K-State Research and Extension 2008; Fig. 2-74).

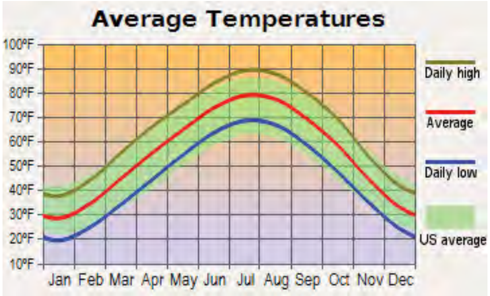


Fig. 2-74 (Citi-Data.com 2008)

Overland Park's average annual rainfall is 40.17 inches. The most rainfall occurs in May, with an average monthly amount of 5.41 inches. The city also receives an average of 20 inches of snow annually, most of it falling in January. (IDcide 2008; Fig. 2-75).

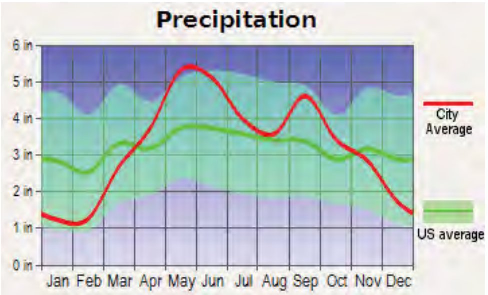


Fig. 2-75 (Citi-Data.com 2008)

The wind in Overland Park can be quite strong throughout the year, and tends to hover near or even above the maximum national average. Wind speeds are highest during late March and early April, when average wind speeds are more than 12 miles per hour. (Fig. 2-76). However, significant deviations from the averages are common. It is not abnormal for sustained wind speeds to reach as high as 25-40 miles per hour for several days at a time, and wind gusts as high as 60 miles per hour can occur during the windiest times of the year. (K-State Research and Extension 2008).

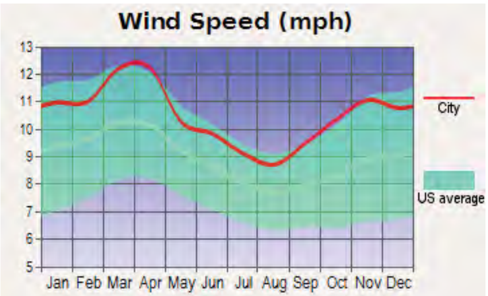


Fig. 2-76 (Citi-Data.com 2008)

Climate factors in Overland Park present a number of opportunities and challenges. There are few times during the year when outdoor activity is completely impractical because of the weather. Even in the middle of the summer and the middle of the winter, temperatures can be comfortable enough for outdoor activity during certain times.

With the implementation of appropriate design elements, there is no reason why the project site cannot serve as a forum for outdoor activity throughout the year. To achieve that goal, it is not sufficient to simply provide outdoor amenities. Instead, those amenities must be designed in such a way as to maximize physical comfort of users in a wide range of weather conditions.

In general, outdoor space for recreation and other uses should have sufficient shade from the Sun to provide a comfortable environment during the hottest months. Protection from the wind through the use of vegetation or structures or by taking advantage of existing landform is also an important consideration. During the winter, outdoor activity may only be comfortable if exposure to the Sun can be maximized. The use of deciduous trees should therefore be a priority where possible.

Parks and playgrounds are particularly vulnerable to climate because children yearn to be outside regardless of the season. Special attention should be paid to the placement and design of parks and playgrounds to ensure that they are usable not only year-round, but also for as much of the day as possible. For instance, during the summer it is important for play equipment to be shaded throughout the day, not only during certain times. That same playground should be exposed to as much sunlight as possible during the winter because it is not uncommon for temperatures even in the middle of winter to be warm enough for outside activity, particularly in direct sunlight.

Topography and Landform

Elevations at the project site range from a maximum of 1063 feet on the south-central edge of the site to 937 feet at the point where Coffee Creek exits the property in the northeast corner of the site, creating a total elevation change of 126 feet. The second highest point - approximately 1040 feet - exists in the northwest quarter of the property near the west property line. (See, Fig. 2-77).

The topography of the site creates a number of opportunities and challenges. Positive factors include the ability to drain stormwater without significant grading, the presence of aesthetically interesting landforms, opportunities to shelter certain land uses from the wind, high points for the placement of prominent land uses such as civic buildings, and natural corridors conducive to the growth of woody vegetation and to the placement of amenities such as trails and parks. Challenges include the exposure of higher elevations to strong winds, surface water intrusion from adjacent land uses, and difficulty designing blocks and street networks. In addition, because research shows that retail fares poorly when shoppers must contend with significant grade changes, the task of locating relatively level ground for a retail district is a daunting one if the natural landform is to be preserved. (See, Gibbs 2008).

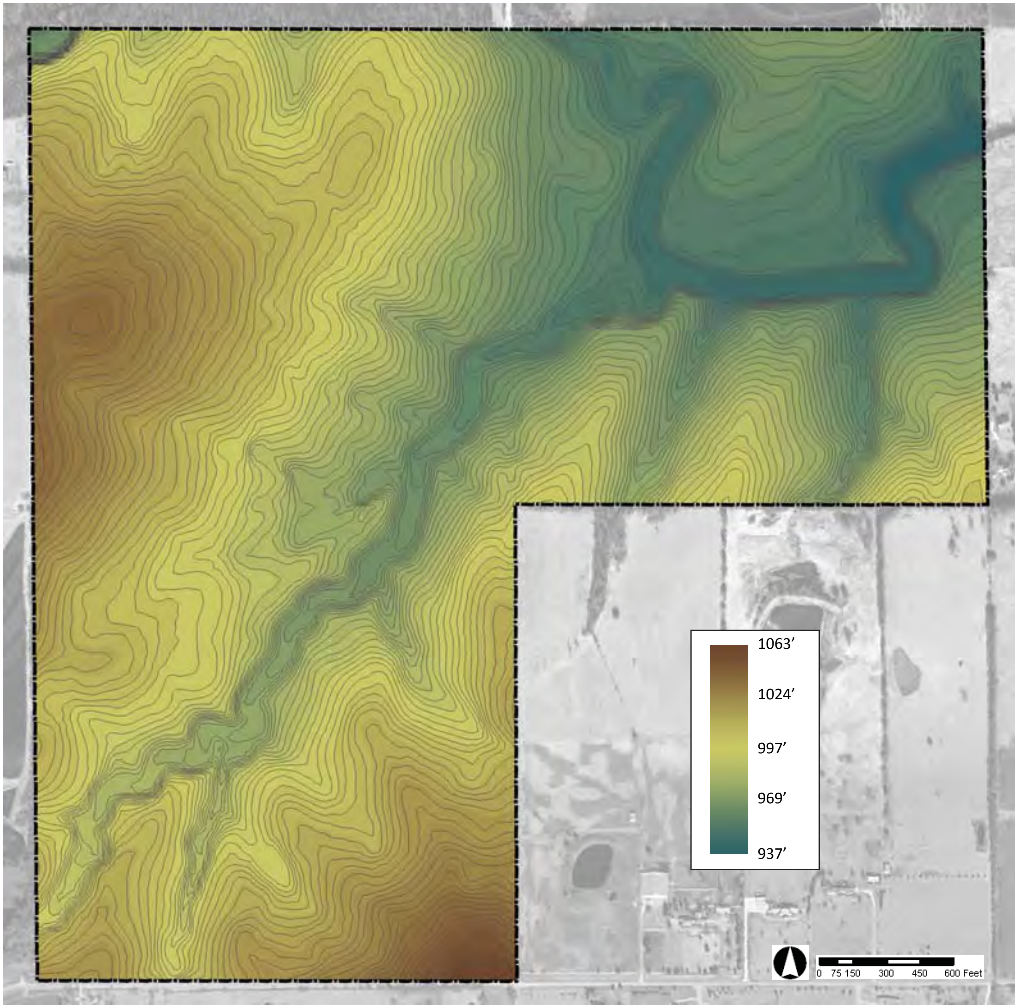


Fig. 2-77 Elevations and Contour Lines (2-ft intervals)
(Adapted from Johnson County 2008 and DASC 2008)

Slope Percent

Figure 2-78 illustrates the slope percentages at the project site. The main purpose of the slope percent analysis is to evaluate the suitability of the land for alleys behind buildings (including residential areas) and the placement of homes and other buildings in close proximity to each other without large side yards.

Land with slopes of 0-4% is suitable for any land use without the need for significant grading to accommodate alleys and the placement of buildings in close proximity to each other. Streets on slopes of 5-8% should run perpendicular to contours where possible to maintain constant elevations between homes situated across the street from each other and between garages situated across the alley from each other. On slopes of 9-15%, grading or small retaining walls between buildings is necessary in addition to running streets perpendicular to the contours. Land with slopes exceeding 15% would require significant grading, though few slopes that extreme exist on the site, and most lie within statutory stream setbacks where roads and large structures will not be built. Because very little of the project site has slopes exceeding 8%, slope percentage is not likely to be a major limiting factor in the design of the project.

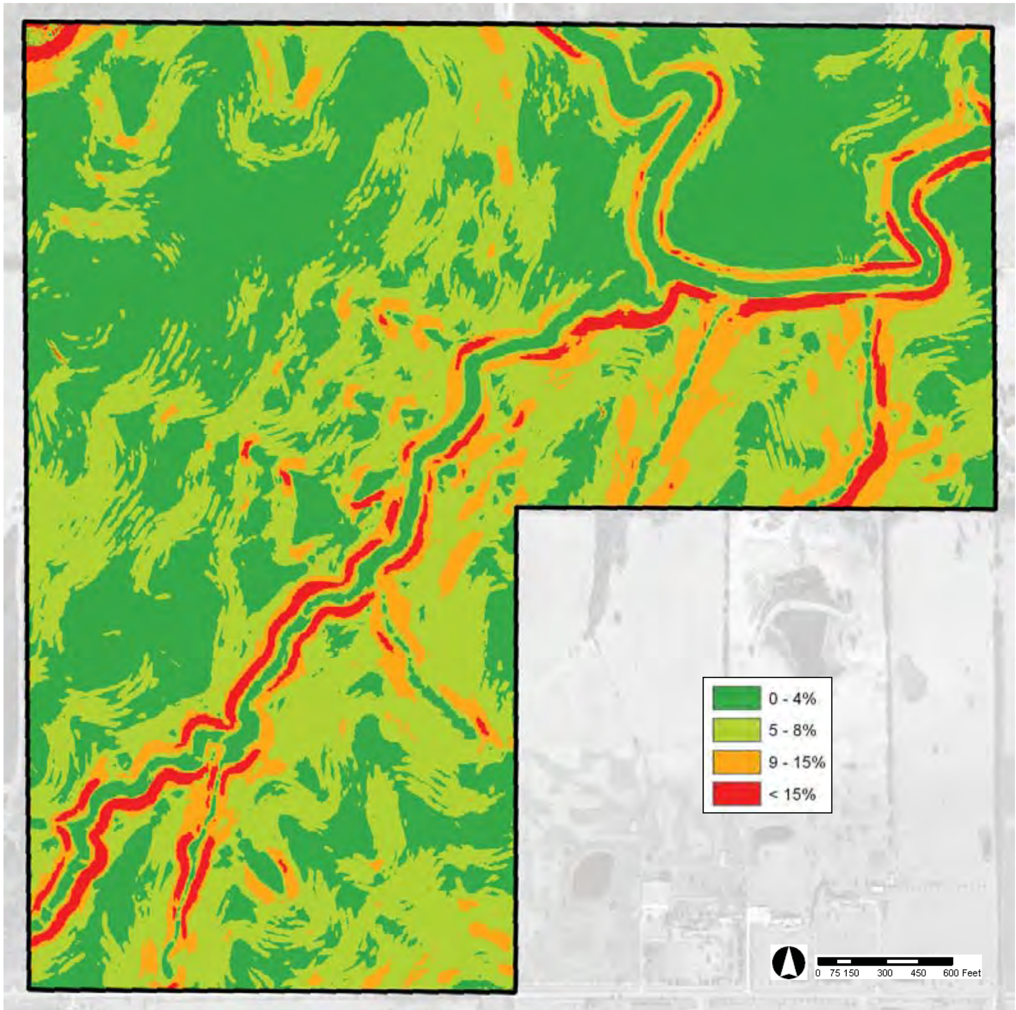


Fig. 2-78 Slope Percent
(Adapted from Johnson County 2008 and DASC 2008)

Slope Aspect

The often intense summer sunlight, strong south winds, and occasional cold north winds characteristic of the region should be taken into account when determining the placement of program elements that may be sensitive to those factors. There is no single slope aspect that dominates the project site. Instead, its rolling topography and the stream corridors create a wide variety of slope aspects across the site. (See, Fig. 2-79). Rather than establishing broad guidelines for the orientation of program elements, that orientation should therefore be conducted on a case-by-case basis during the design process to the extent that it is necessary and practical. Given the generally gentle topography of the site, slope aspect variations tend to be minimal and gradual, crating few places where slope aspect is likely to be a significant factor in the placement or orientation of program elements.

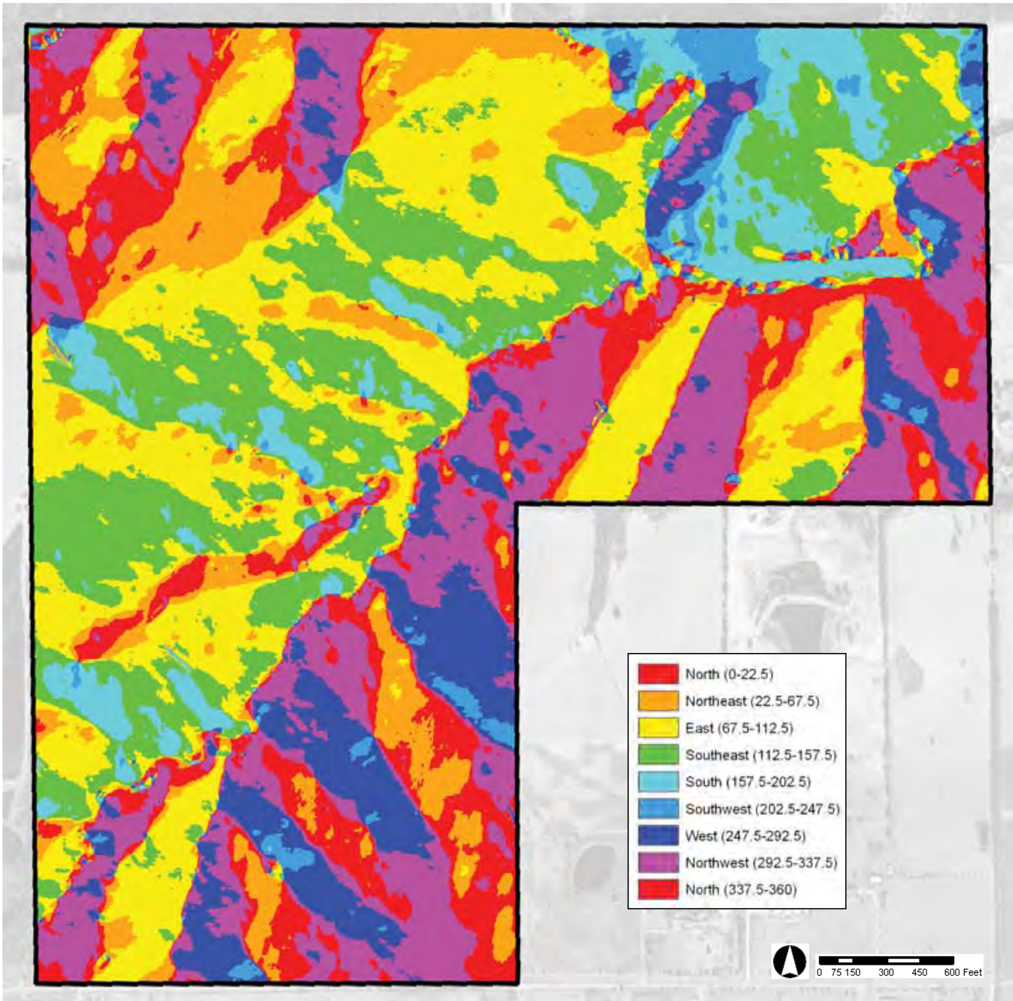


Fig. 2-79 Slope Aspect
(Adapted from Johnson County 2008 and DASC 2008)

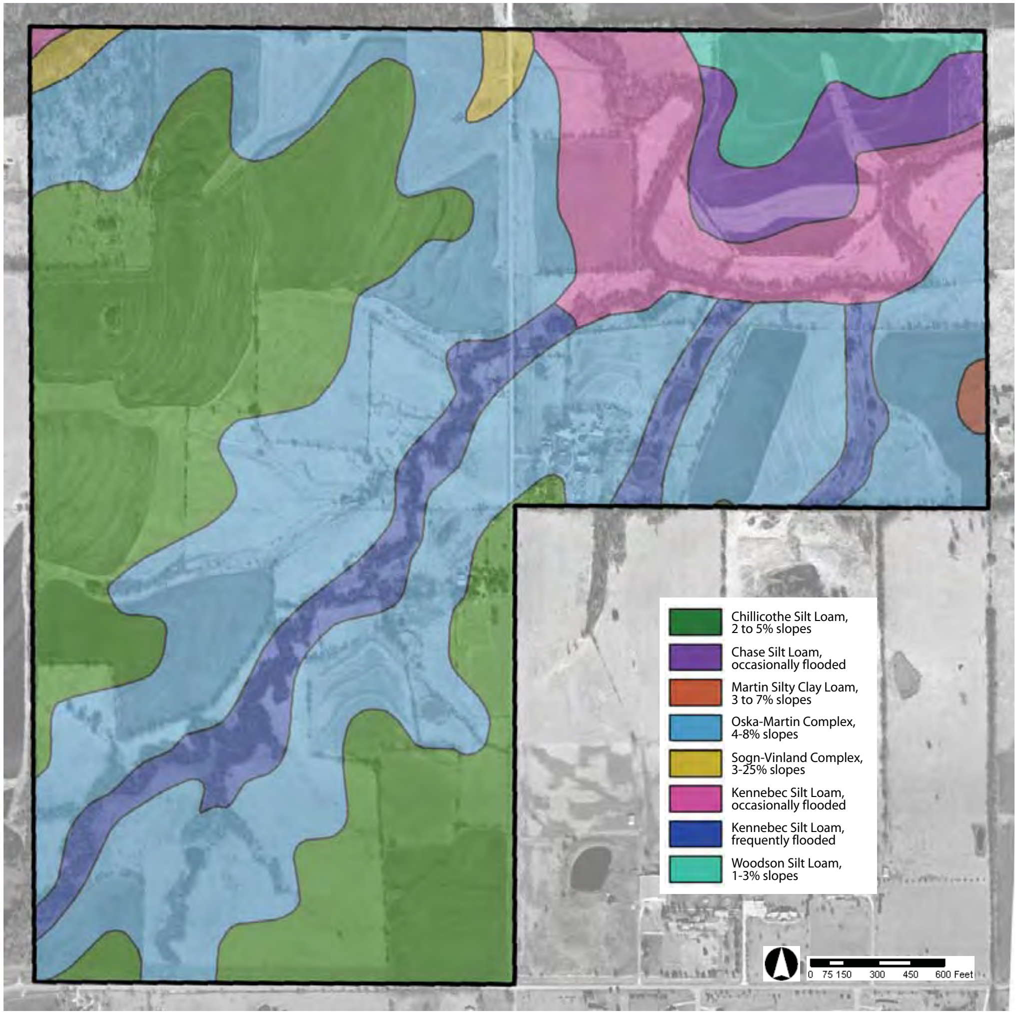


Fig. 2-80 Soils Map
(Adapted from Johnson County 2008 and DASC 2008)

Soils

Most of the soil at the project site is either Chillicothe Silt Loam, 2-5% slopes or Oska-Martin Complex, 4-8% slopes. (Fig. 2-80). The Chillicothe series are very deep, moderately well drained soils formed in loess from limestone or shale and are found on gently sloping ridgetops and the upper side slopes of hills. The Oska series are moderately deep and well-drained soils typically found on slopes of up to 9%. (USDA 2005).

Chillicothe and Oska soils are both are moderately susceptible to erosion by wind and water. Primary concerns related to the both soils are soil strength, subsidence, shrink-swell potential, and potential for frost action. (USDA 2005).

Overall, the soils at the project site do not pose any significant limitations on the kind of program elements that can be built there. Attention will need to be paid to shrink-swell issues during the design of specific site elements that may be affected by that phenomenon, but otherwise the soils are well-suited for a wide range of potential program elements.

Streams and Wetlands

Although a number of stream corridors pass through the site, Coffee Creek, which occupies much of the northeast quarter and a tiny corner of the northwest corner of the site, is the only one that holds water on a continuous basis; all other streams are ephemeral or perennial. There are also several shallow farm ponds and wetlands throughout the site, the most significant of which are situated south of Coffee Creek in the northeast quarter of the site. (See, Fig. 2-81).

The City of Overland Park mandates stream setbacks varying from 60 feet to 120 feet based on the size of a stream's watershed. Within that setback, only limited utilities, low impact recreational uses, and paved or unpaved paths area allowed. (Overland Park 2008; See, Figs. 2-82 and 2-85). Wetlands do not have a setback but most likely cannot be significantly disturbed. The 100-year flood plain of Coffee Creek represents a significant portion of the land in the northeast portion of the site. (See, Fig. 2-83). No permanent structures should be built within that flood plain other than perhaps small recreational facilities such as exercise stations or shelters.

The stream setbacks, wetlands, and 100-year flood plain occupy a combined total of 90 acres of land on the site, leaving 390 acres of land unaffected by water-related restrictions. (See, Fig. 2-84). Those restrictions present obvious design challenges by fragmenting the site, disrupting efforts to maintain a tight network of streets, and reducing the amount of developable land. However, they also present numerous program opportunities.

A well-connected system of open public space for outdoor recreation and trails for non-vehicular circulation is one possible response to the opportunities created by the stream corridors. Such a trail system could not only facilitate internal

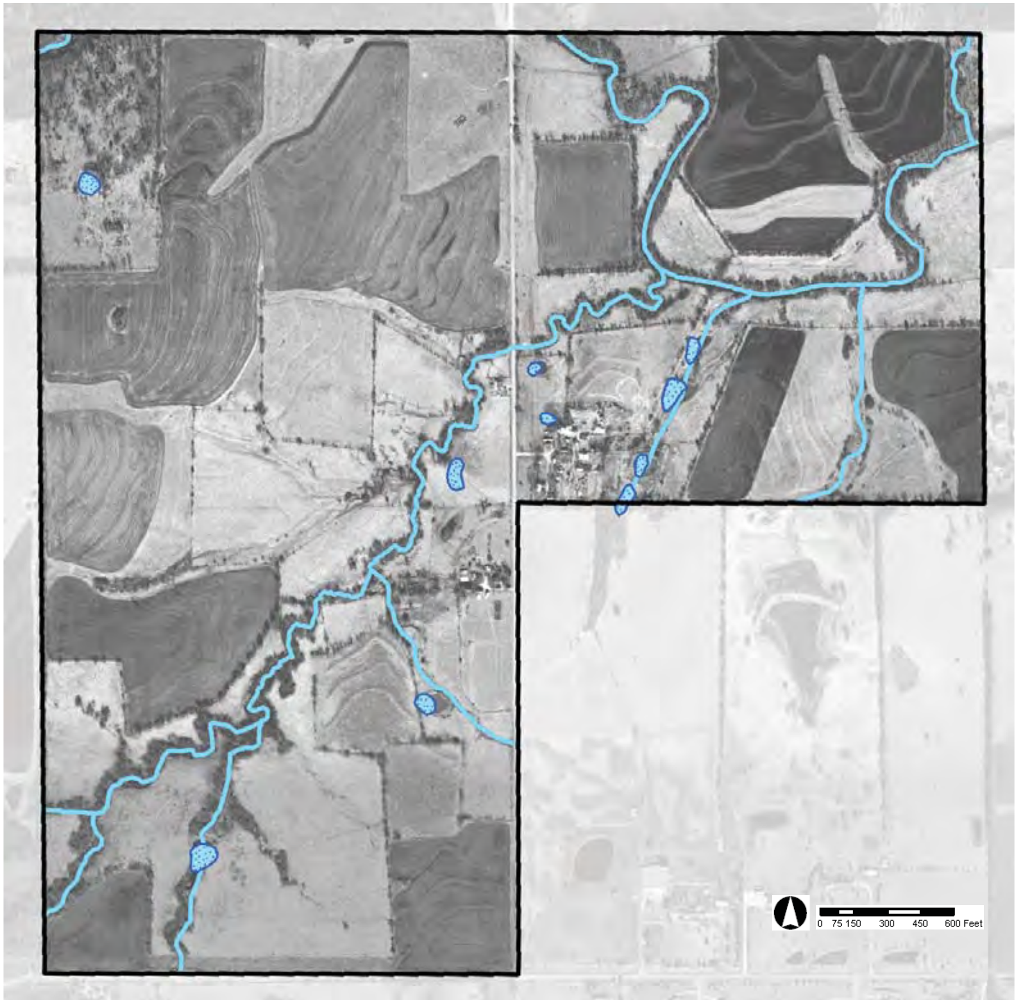


Fig. 2-81 Streams and Wetlands
(Adapted from MARC 2008 and DASC 2008)

Fig. 2-82 Stream Setbacks

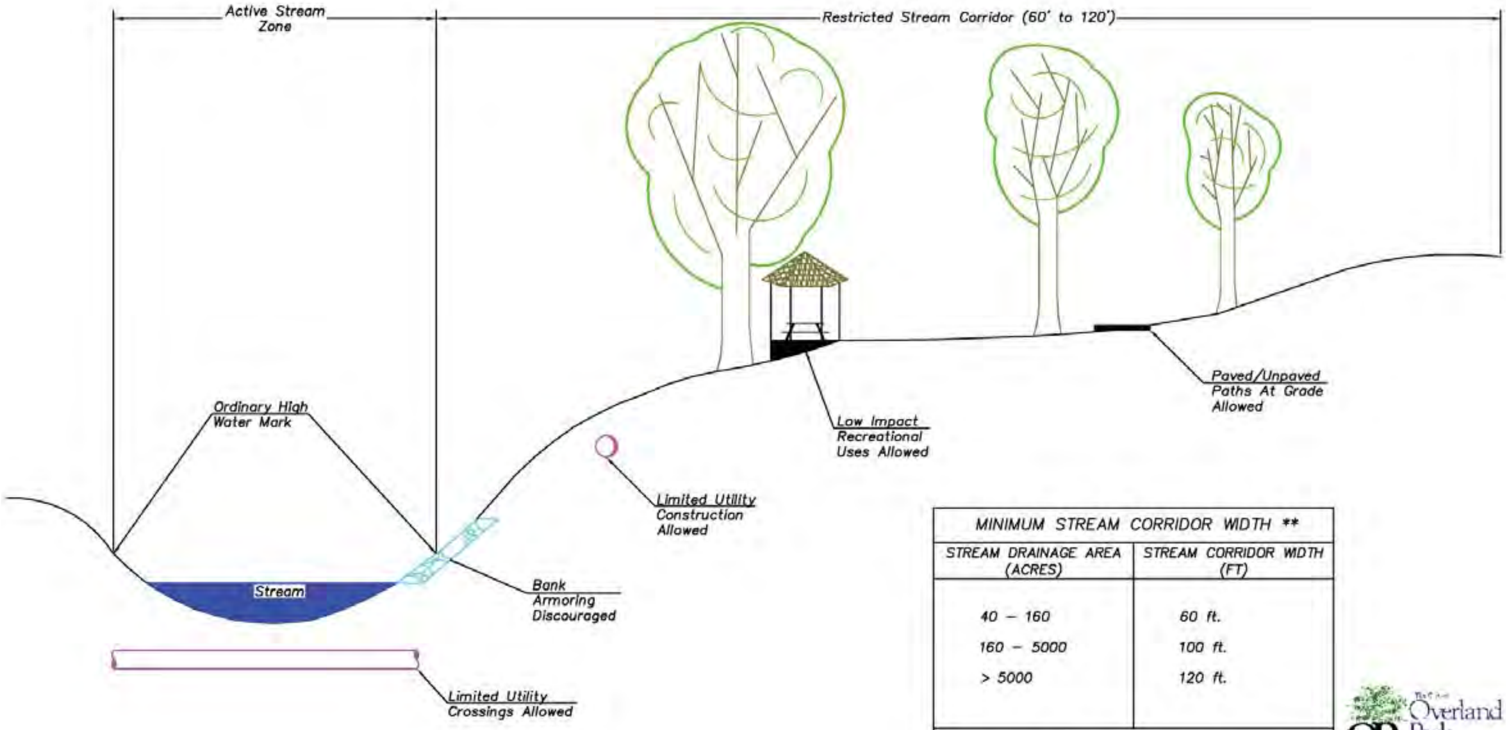
Fig. 2-83 100-Year Flood Plain

Fig. 2-84 Combined Setbacks and Flood Plain

(Figs. 2-82 to 2-84 adapted from DASC 2008 and MARC 2008)

movement, but could also link to the MetroGreen and Johnson County trails discussed previously, thereby serving as local and regional connectors. The preserved spaces are logical choices for the placement of parks and also have the potential for use as a forum for education and awareness about environmental issues and the management of stormwater. Finally, they can serve as habitats for local wildlife that might otherwise be driven from the site by development. However the land included in the setbacks is used, one of the most important considerations is ensuring adequate connectivity to avoid an island effect where preserved land sits in isolation from other preserved land. A primary objective of the design process should be to ensure that connectivity.

Overland Park's stream setback ordinance does not forbid all development within the setback zone. Limited utilities, paved or unpaved paths (at grade), and low-impact recreational structures are allowed. (See, Fig 2-85). Far from representing absolute constraints on development, the stream corridors therefore present excellent opportunities for the inclusion of trails, public open spaces, and other public amenities. The stream corridors - particularly Coffee Creek - can serve as convenient means for creating connections between points within the site and to destinations beyond the site. Opportunities also exist for the development of program elements intended to connect people with and educate them about the site's natural systems.



MINIMUM STREAM CORRIDOR WIDTH **	
STREAM DRAINAGE AREA (ACRES)	STREAM CORRIDOR WIDTH (FT)
40 – 160	60 ft.
160 – 5000	100 ft.
> 5000	120 ft.

** Site Conditions May Require Larger Setbacks Due To Stream Bank Stability Issues.

Fig. 2-85 Example Stream Corridor System
(Johnson County 2008)

Fig. 2-86 Farm pond in northeast portion of site

Fig. 2-88 Coffee Creek

Fig. 2-87 Farm pond in northeast portion of site

Fig. 2-89 Coffee Creek

Aesthetically, the stream corridors and ponds are some of the most attractive parts of the project site. (See, Figs. 2-86 - 2-89). They present excellent opportunities for recreational uses and for naturalistic areas where people can escape from the built environment. And while Coffee Creek and the ponds themselves have not been particularly well maintained over time, it does not appear that the cost of rehabilitating them would be onerous.

Photos: Steve Rhoades 2007

Land Cover

The vast majority of the project site is cultivated agricultural land divided into irregularly shaped fields. A small portion of land in the northwest corner of the site has laid fallow over the years and has gradually been reclaimed by woodland vegetation spreading from the nearby stream corridor. Woodland vegetation dominates most of the stream corridors on the site except for short segments in the eastern quarter section of the site that exhibit primarily marsh and wet herbaceous vegetation. A relatively small amount of land near the center of the site - where the farm houses, barns, and accompanying buildings sit - is classified as developed land. (See, Fig. 2-90).

Pastures at the project site used for livestock grazing are well covered by vegetation - primarily cool season grasses - and exhibit very little soil exposure. Osage Orange (*Maclura pomifera*) appears to be the most common tree species on the property, particularly around the pastures. Black Locust (*Robinia pseudo-acacia*), Eastern Red Cedar (*Juniperus virginiana*), and Honey Locust (*Gledistia triacanthos*) are also common. (PBA 2007).

Most of the site is used for crop production, primarily wheat, corn, and soybeans. Where appropriate, the fields have been contoured to minimize soil erosion. The crop fields are in excellent condition. (PBA 2007).

Few areas of the site have vegetation worth retaining. Those that do tend to correspond with stream corridors and woodland areas, which generally coincide with land subject to restrictions on development in the first place. Trees bordering some of the agricultural fields may also be worth retaining if they are in good condition. Selecting vegetation to be retained cannot be done on a site-wide scale because the condition and appearance of the trees varies so greatly across the site. Selecting vegetation to be retained should therefore be done on a case by case basis. And because so much of the site is cultivated agricultural land, it will be necessary to undertake a large-scale planting effort to provide the site with sufficient vegetation for its intended purpose.

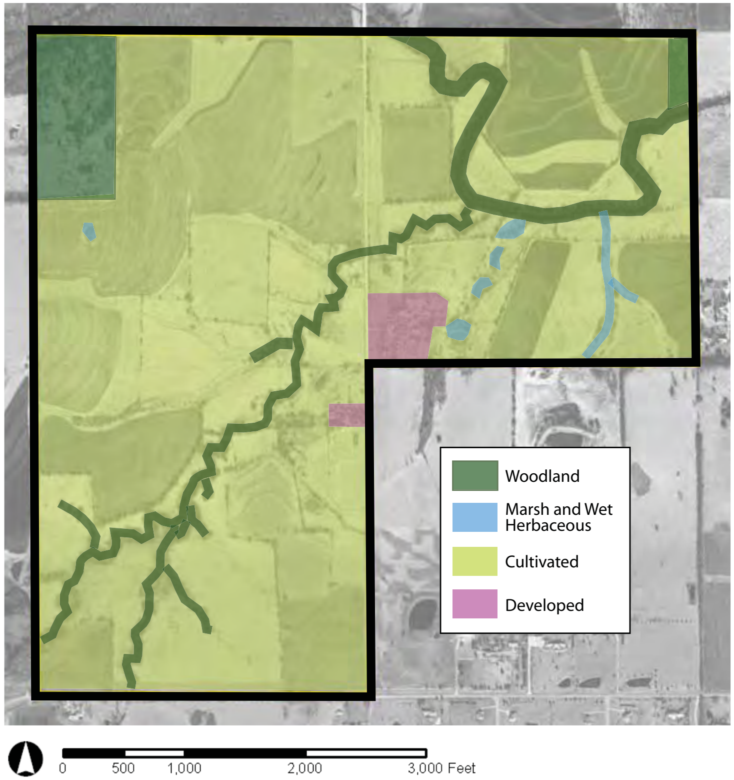


Fig. 2-90 Existing Land Cover
(Adapted from MARC 2008)

Figures 2-91 through 2-98 illustrate the various kinds of land cover present at the project site. Because cultivated farmland covers by far the greatest amount of the site's total area, the site is dominated by short grasses and agricultural crops, with trees limited primarily to the edges of fields and riparian corridors.

Photos: A-G Tony Sease 2008

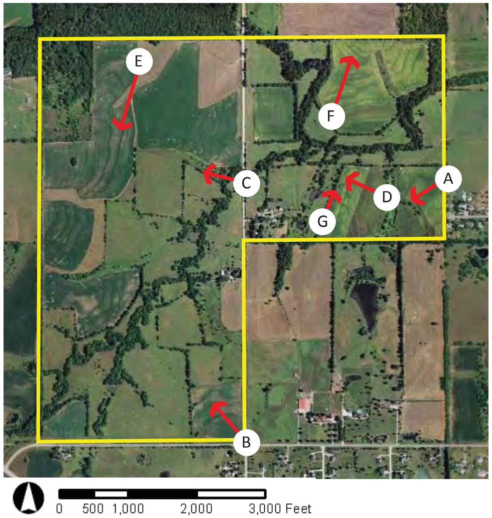


Fig. 2-91 Key Map: Land Cover Views
(Adapted from Google Earth 2008)

175th Street (looking west from Quivira Rd)

Quivira Road (looking north from 175th Street)

Quivira Road (looking south)

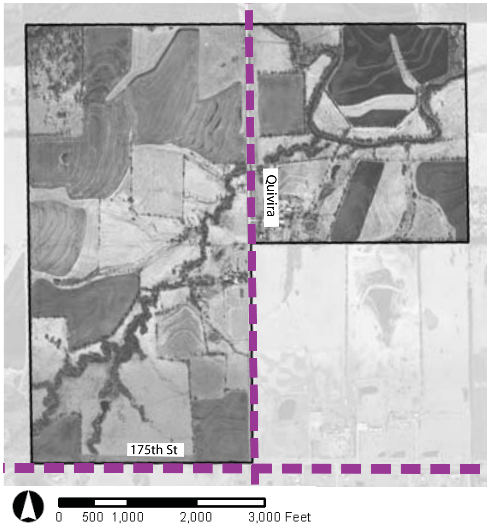


Fig. 2-102 Existing Roads
(Figs. 2-102 to 2-105 adapted from DASC 2008)

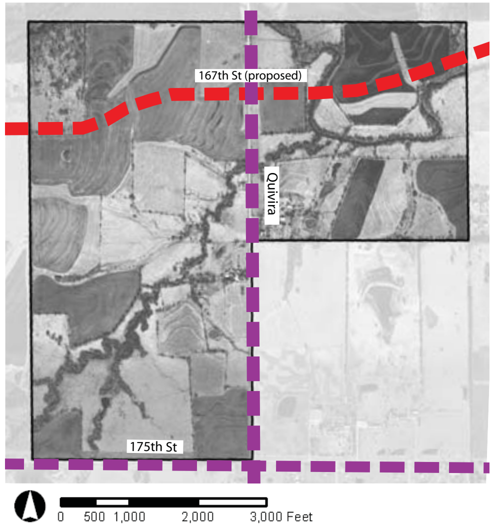


Fig. 2-103 Proposed Roads

Roads

Quivira Road, unpaved until late in the summer of 2008, is currently a two-lane road passing through the project site from north to south. It intersects 175th Street, a paved two-lane road with an east-west orientation that runs along the site's southern edge. Both roads have rights of way varying from 20 to 40 feet on each side of the centerline. (See, Figs. 2-99 - 2-102).

The City of Overland Park anticipates expanding 175th Street by doubling its width to four lanes, converting it to a "super collector" with two lanes in each direction. The City has also proposed extending 167th Street - which currently does not extend westward past Switzer Road - all the way to Pflumm Road, thus directing it through he project site. Although 175th Street currently traces the section line that serves as the northern boundary for the project site, the engineering plan commissioned by the city contemplates moving the road corridor to the south through the project site to avoid conflicts with Coffee Creek. The City also anticipates widening Quivira to four lanes at some point and increasing rights of way to 60 feet on each side of the centerline for Quivira Road and 40 feet on each side of the centerline for

Photos: David Vogel 2008

Fig. 2-104 Developable Land

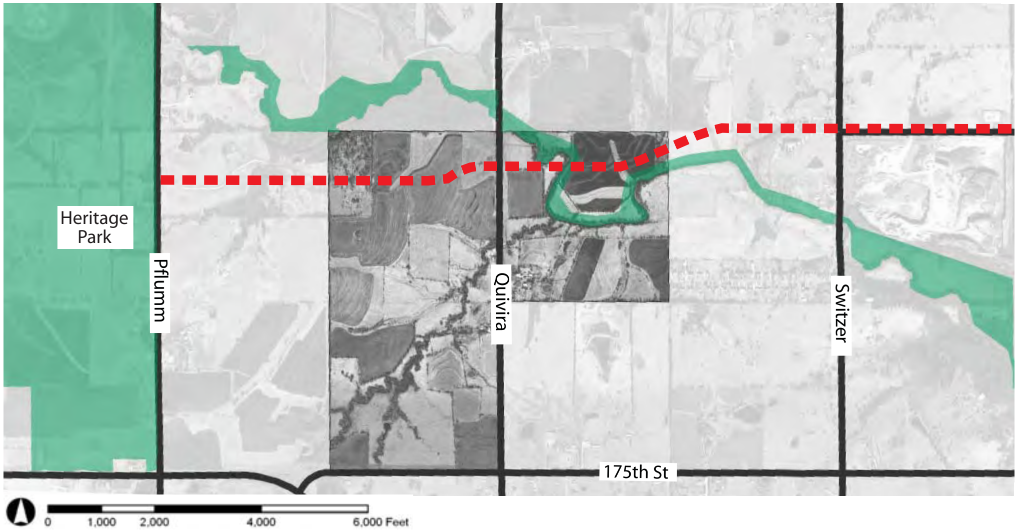


Fig. 2-105 Proposed 167th Street Alignment

175th Street. The extension of 167th Street is also designed with a 60-foot right of way on each side of the centerline. (BHC Rhodes 2008) (Fig 2-103).

Combined with the water-related issues discussed previously, the rights of way can be expected to reduce the amount of developable land to approximately 366 acres. (Fig. 2-104). Like the stream corridors, the existing and proposed roads adjacent to and through the project site present various challenges and opportunities. Obvious challenges are the potential for further fragmentation of the site, the reduction of the amount of developable land, and the creation of corridors with high traffic volumes and speeds along which people may not desire to spend time, much less live. However, the opportunity exists to design roads that actually create an inviting environment for residences and even pedestrians. The arterial streets also create access for visitors to retail, commercial, recreational, and other components of the project. And of course such roads would also provide a convenient means for residents at the project site to reach other parts of the city and the region.

It is also important to note that the alignment of 167th Street is flexible. Current plans call for the street to pass through the northern portion of the site and then dead end at Pflumm, which is the eastern edge of Heritage Park. (Fig. 2-105). However, is quite realistic that the Overland Park Planning Commission could be persuaded to allow an alternate alignment. Incorporating a more suitable alignment for 167th Street is therefore an important component of the design program for the project.

Connectivity to Adjacent Streets

Figure 2-106 identifies points of connection between the project site and adjacent roads, both existing and planned. Although the diagram is by no means intended to represent the total number of connection points, it provides a good opportunity to plan for interactions with adjacent projects, some of which are currently under construction, and some of which are merely in the planning stage.

Point A is situated on the proposed alignment for 167th Street. Any street that crosses the point is likely to serve as the northern boundary for the Chapel Hill residential subdivision located immediately west of the project site.

Point B provides access into the Chapel Hill subdivision but is not suitable for a major through street because it stops at a T intersection only a short distance west of the property line. It is, however, suitable for a residential street not intended to carry a high volume of traffic.

Point C also provides access into the Chapel Hill subdivision, but unlike Point B, connects to a collector street - 173rd Street - that crosses through the entire subdivision. A short segment of 173rd Street has already been paved beginning at Pflumm Road but does not continue all the way to the Verhaeghe property line. (Fig. 2-107). On the west side of Pflumm, the street continues into Heritage Park. (Fig. 2-108). Point C therefore presents an opportunity for connecting to not only the Chapel Hill subdivision, but also to Pflumm Road and Heritage Park.

Point D marks the location where 175th Street veers south and west from the southern edge of the project site toward its intersection with 179th Street. Although Point D is a logical point of connection for a major street through the project site, an intersection there would be very close to the intersection of 175th and 179th Streets and may therefore cause a bottleneck of traffic on the short segment of road between the two intersections.

Points E and F both mark access roads into the school site located south of 175th Street. The points offer opportunities for direct vehicular movement between the project site and the school site and may also be logical locations for pedestrian crosswalks with traffic signals.

Point G is a potential connection to the cul-de-sac that lies at the terminus of 170th Terrace, a short distance south of the Coffee Creek subdivision. Although there is not currently a paved connection at that point, the developer of Coffee Creek Crossing built a temporary gravel road connecting the cul-de-sac with 169th Street to the north to satisfy requirements for fire truck access to the construction site.

Point H marks the location where 169th Street meets the eastern boundary of the property site,

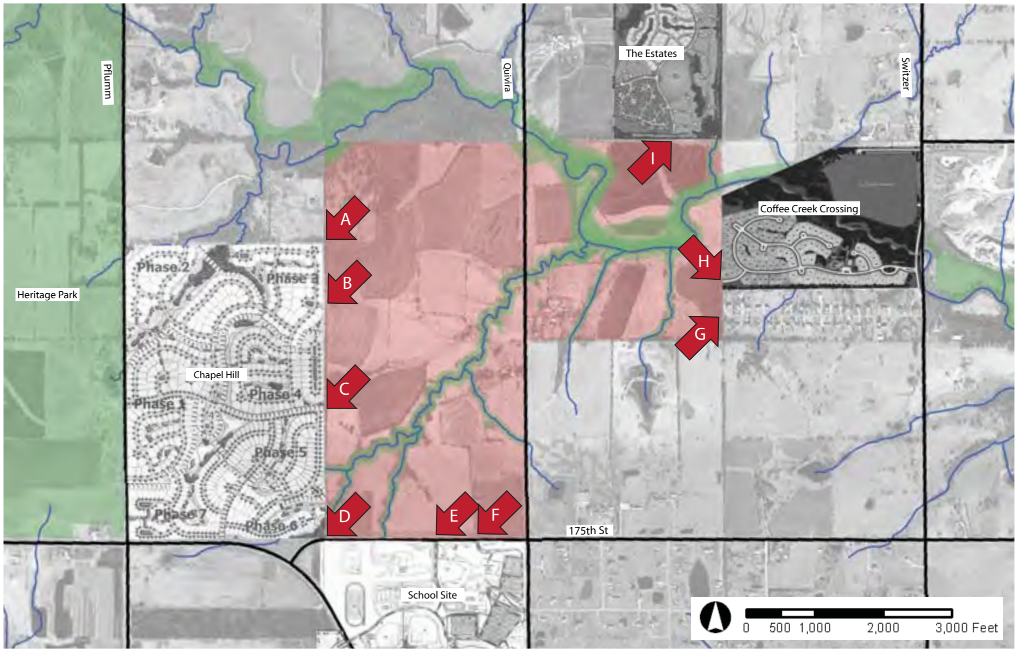


Fig. 2-106 Potential Connections to Adjacent Roads (Adapted from DASC 2008)

thus providing direct access to the Coffee Creek Crossing subdivision and, beyond that, Switzer Road. (Fig. 2-109). Given the street layout for the master plan of Coffee Creek Crossing, Point G is likely to be the only possible point of vehicular ingress and egress between the project site and Coffee Creek Crossing.

Finally, Point I connects to a proposed street in The Estates, a subdivision north of the property site for which construction has not yet begun. Based on the master plan for the subdivision, Point I is likely to be the only point of vehicular access on the north property line of the project site.

Based on the preceding analysis, the proposed alignment for 167th Street – which calls for the street to cross the west edge of the property site at point A in Figure 5-5 – should be altered for two primary reasons. First, it makes little sense to build a new and expensive extension of the street through several new project sites when it will simply terminate at Pflumm Road along the east boundary of Heritage Park. Second, the proposed alignment would cause an unduly and unnecessarily burdensome fragmentation of the project site.

Instead of point A, it makes much more sense to align 167th Street such that it intersects point C or D, either of which would represent a dramatic increase in circulation and connectivity compared to point A.


Fig. 2-107 173rd Street in Chapel Hill Subdivision


Fig. 2-108 173rd Street crossing Pflumm and entering Heritage Park


Fig. 2-109 169th Street in Coffee Creek Crossing

Photos: David Vogel 2008

Summary and Conclusions

The inventory and analysis gives rise to several issues that are likely to have the greatest impact on the design and to which special attention must be paid during the design process if the goals and objectives are to be met. Those issues relate to the stream corridors, streets, topography and landform, and MetroGreen trail system.

The stream corridors are the most obvious factors that the design must address because of their prominence on the site and the effect they will have on the layout of the project. The design must respond to the stream corridors in such a way that creates ample open space and accessibility to that open space without excessively reducing the amount of land available for development. Throughout the design process, care must also be taken to ensure that treatment of the stream corridors is not simply an afterthought, but rather a central component of the design.

Existing and future streets adjacent to and through the project site are the next most significant factors because they will have a major influence on the placement of program elements and the overall layout and form of the project. The design must integrate streets in a way that takes full advantages of the opportunities they offer while ensuring that they do not dominate the project or hinder other land uses. Particular attention must be paid to ensuring that streets do not act as barriers to vehicular or pedestrian movement within the site. At the same time, the streets present important opportunities for creating local and regional connections and must therefore be connected thoughtfully to minor streets within the project site.

Topography and landform are important for three primary reasons. First, as later research will illustrate, streets and blocks in the design must in many cases be oriented perpendicular to slopes to maintain important spatial relationships between buildings. Second, because minimizing environmental disturbances is a goal of the project, care must be taken to conform the design to the existing topography as much as possible, including the preservation of existing drainage channels that feed into the larger network of stream corridors. Third, topography and landform create conditions in various parts of the site that are particularly appropriate for specific program elements such as civic uses and a retail district.

Finally, the MetroGreen trail system creates an important opportunity for connecting the site locally and regionally and augmenting the vehicular connections already discussed. The design must integrate the MetroGreen trail system and ensure that adequate connections do exist. It is not sufficient to simply create space for the trail to run adjacent to the development.

Precedent Studies

Introduction and Methodology

The projects examined in the precedent study fall into two major categories: (1) Those that relate to context-specific issues identified during the site inventory and analysis; and (2) Those that relate to traditional neighborhood design and mixed-use design principles.

The major context-specific issues that lend themselves to precedent studies are: (1) Topographic variations within the site, with a total elevation change of 126 feet from the points of highest to lowest elevation, and slopes ranging from approximately 0-15%; (2) Riparian corridors, ponds, and wetlands that will restrict development and fragment the site but also provide opportunities for certain program elements; and (3) The future expansion of both 167th Street and Quivira Road through the site. Each precedent study for the context-specific issues is narrow in scope, limited only to the specific design characteristics that relate directly to the issue identified.

The principle-based precedent studies, which focus on concepts related to traditional neighborhood design and mixed-use projects, range in scale and depth from entire projects down to single design principles, as the case merits. Mixed-use projects in particular receive significant attention because of their complexity and because of their frequent role as a vital center of activity for a neighborhood. Combined, the various precedents paint a broad picture of the issues, challenges, and opportunities inherent in the design of a traditional neighborhood project.

A project's inclusion as a precedent study does not necessarily signify a belief that it serves as a positive example to be emulated. In some cases, projects were chosen because for the opposite reason - because they serve as examples of design strategies that are not appropriate for the Overland Park project site. Valuable lessons can be learned from both the positive and negative examples.

Overview

New projects based on traditional neighborhood design principles are very often located on greenfield sites that are relatively level, with few if any challenges posed by the topography. The New Town at St. Charles near St. Louis and Stapleton in Denver illustrate this phenomenon perfectly. (See, Figs. 3-1 and 3-2). But with slopes of approximately 5-15% covering much of the site, the Overland Park project presents a completely different landform, and with it, a unique set of challenges. One of the most fundamental components of New Urbanism is the use of alleys to serve garages placed behind homes. While that configuration is rather simple on level land, it becomes very difficult on land with significant slopes because the parcels of land on both sides of the alley must be at a similar elevation for the arrangement to work. (See, Fig. 3-3).

Fig. 3-1 New Town at St. Charles
(newtownatstcharles.com 2008)

Fig. 3-2 Stapleton
(stapletondenver.com 2008)

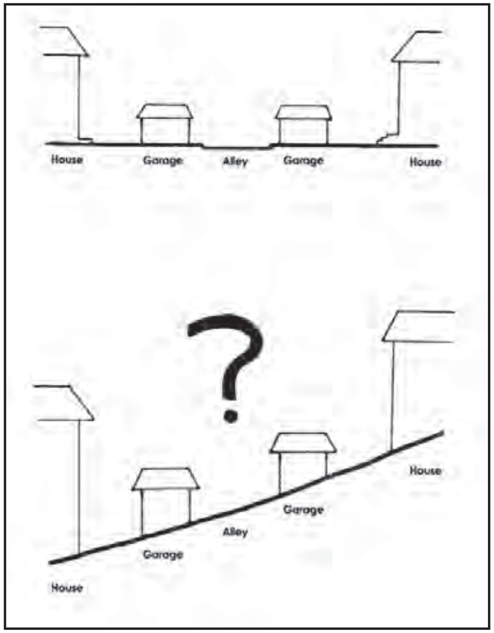


Fig. 3-3 Topography-related challenge
(David Vogel 2008)

Communications Hill

Located in San Jose, California, Communications Hill is a 500-acre project that features slopes ranging from 10% to over 35% (Katz 1994; Communications Hill Specific Plan 1992) (See, Fig. 3-4). The master plan called for streets that formed a grid and a geometric block structure despite the project's hillside location. (See, Fig. 3-5).

Fig. 3-4 Communications Hill Master Plan
(City of San Jose 1992 - no scale)

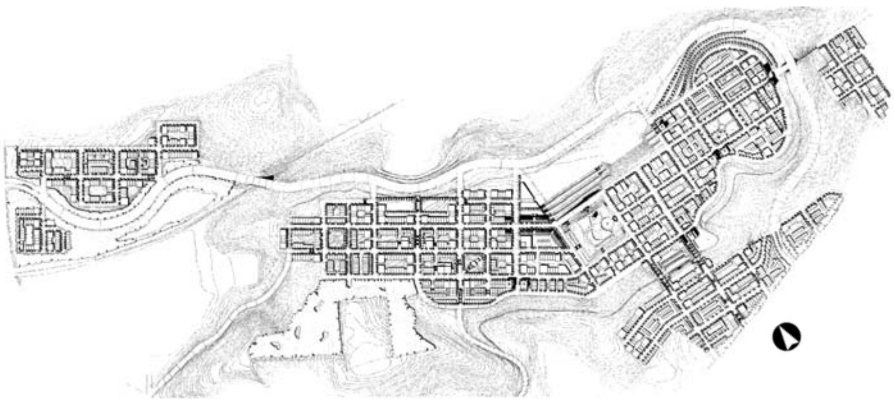


Fig. 3-5 Communications Hill Neighborhood Plan
(City of San Jose 1992 - no scale)

The design team conducted a series of studies using physical models of the site to determine the types of slopes present at the and the best ways to deal with each type of slope. (See, Figs 3-6 , 3-7, and 3-8). The result was a design that conformed to the topography as much as possible, often creating short terraces between buildings for street alignments. The buildings themselves are stepped when necessary to avoid excessive grading (City of San Jose 1992; Katz 1994).

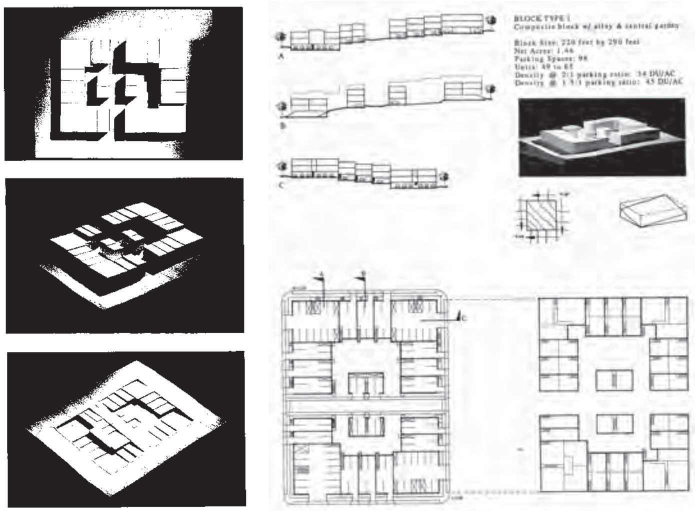


Fig. 3-6 Communications Hill Model Study (City of San Jose 1992)

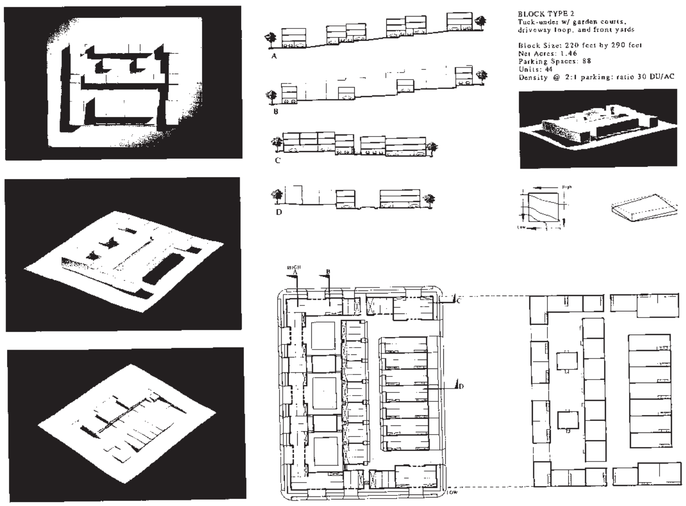


Fig. 3-7 Communications Hill Model Study (City of San Jose 1992)

Fig. 3-8 Communications Hill Model Study
(City of San Jose 1992)

Two design characteristics in particular seem to have made it possible for the blocks to conform to the topography so successfully: First, the homes on those portions of the site with significant elevation changes are organized into dense blocks composed of townhome-style multi-family units with the living spaces stacked on top of the garages. Detached single-family homes are reserved for a small area on the northwest end of the site where the topography is much more level, though even those homes have tuck-under garages. (See, Fig. 3-9). The elimination of stand-alone garages significantly decreases the amount of horizontal distance – and thus the elevation change – between homes, even when the streets run parallel to the topography. Second, many of the garages are not served by alleys, relying instead on short driveways on the street sides of the homes. Although such an arrangement violates one of the central tenets of New Urbanism – eliminating driveways and garages in fronts of homes to improve the streetscape – it is a very effective means of dealing with elevation changes.

A third design technique, though used less frequently, appears more useful for configuring the detached single-family homes that are likely to dominate the site in Overland Park. Some of the streets at Communications Hill run perpendicular to the topography. Grade changes are made up by stepping the buildings down the slopes from one unit to the next, thus making it possible to serve the rear of each building with an alley. Garages facing each other across the alley remain at the same elevation, eliminating the awkward arrangement illustrated in Figure 3-3. (See, Fig. 3-10). Communications Hill serves as a useful precedent particularly for those parts of the project that will feature high-density housing, where tuck-under garages are a potential design element. Although less directly applicable to detached single-family housing, it nevertheless provides a model that can be adapted to suit the needs of detached single-family homes by running the streets perpendicular to the topography where slopes exceed 4 percent.

Fig. 3-9 Detached single-family homes
(Virtual Earth 2008)

Fig. 3-10 Streets perpendicular to slopes
(Virtual Earth 2008)

Laguna West

Laguna West, a 1,045-acre project in Sacramento County, California offers some interesting examples of how to integrate driveways with direct access to the street despite the fact that it was built on almost completely level terrain. Originally designed with numerous alleys, the final design does not utilize alleys at all, relying instead on conventional front-loaded driveways. (Katz 1994; Virtual Earth 2008; Google Earth 2008) (See, Fig. 3-11). In fact, much of the project hardly seems worthy of the New Urbanism label at all. (See, Fig. 3-12). Nevertheless, some of the homes at Laguna West interrupt the street only minimally with their driveways and use a modest amount of pavement. (See, Figs. 3-13 and 3-14). The project serves as a good model for integrating front-loaded garages into the Overland Park project in places where alleys may be impractical.

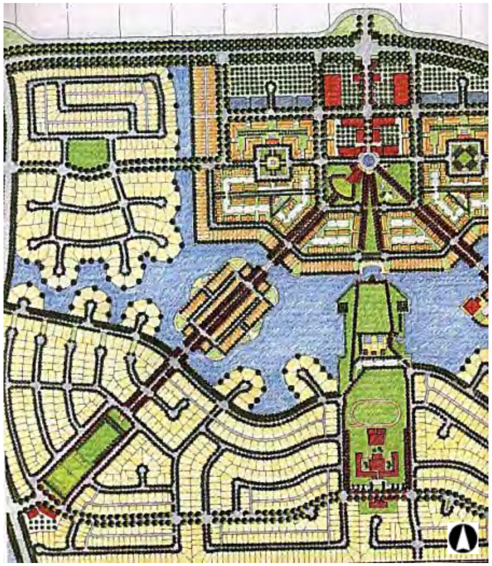


Fig. 3-11 Portion of Laguna West master plan
(Katz 1994 - no scale)

Fig. 3-13 Laguna West driveway designs (Katz 1994)

Fig. 3-12 Laguna West as actually built
(Virtual Earth 2008)

Fig. 3-14 Laguna West driveway designs (Katz 1994)

Riparian Corridors

Fairview Village

Unlike topographic variations, the presence of riparian corridors is a very common element of many New Urbanist communities. Because New Urbanism principles stress the importance of a well-connected network of streets, streams pose significant barriers because they interrupt that network. Without spending exorbitant amounts of money on bridges to reconnect streets severed by stream corridors, the reality is that designers must find ways to work around streams and accept the fact that the street network will be imperfect.

Fairview Village, a 96-acre project just outside Fairview, Oregon, is an excellent example of a site with major limitations imposed on it by riparian corridors. (See, Fig. 3-15). Designers responded to two streams cutting through the site by limiting the number of vehicle bridges to two and adding three pedestrian bridges. A trail system with a bridge over one of the streams connects homes to the elementary school in the southwest corner of the property. Another pedestrian bridge provides a link to a fitness center in the northwest corner of the property. (See, Fig 3-16). The third bridge creates a connection to homes in the southeast corner of the site that would otherwise be cut off from the rest of the project. (See, Fig. 3-17). As a result, a site that in reality has four very distinct pieces of land divided by streams has been stitched together as a more cohesive project.

Fig. 3-15 Fairview Village master plan (Gause 2002)


Fig. 3-16 Pedestrian bridge over steam (Virtual Earth 2008)


Fig. 3-17 Pedestrian bridge over stream (Virtual Earth 2008)

Fig. 3-18 Fairview Village aerial photo (Google Earth 2008)

In addition to connectivity issues, Fairview Village offers guidance on a second important factor related to the presence of stream corridors: the relationship of the development to the edges of those corridors. The Fairview Village design exhibits two different ways of relating to the edges of riparian corridors. The one used most prominently at the site is to line the corridors with homes, with the back yards facing the streams. The disadvantage of that strategy is that it essentially privatizes the stream corridors by blocking public access to them. The second strategy is to maintain public open space along the stream corridor, which the designers of Fairview Village did in only one place. There, a park sits between the street and the stream and ties into the trail network through a heavily wooded area and ultimately to the elementary school in the southwest corner of the site. (See, Fig. 3-18).

The primary lessons from Fairview Village are that riparian corridors can lose their potential as site amenities if they are effectively privatized by lining them with lots for homes and that connectivity can be maintained throughout the site despite the presence of riparian corridors if sufficient pedestrian crossings are used. Fairview Village has perhaps too few pedestrian bridges, likely because access to the streams is blocked by private property. If more land along the streams can be freed up for public use, it will not only create more open space, but also increase the connectivity of the entire project.

Vickery

Vickery, a 210-acre New Urbanist project near Cumming, Georgia, has a major stream corridor running along its western boundary, with smaller tributaries leading to it from other parts of the site (DPZ 2008). (See, Fig. 3-19). Designers approached the challenges posed by the tributaries in Vickery by creating parks or preserves around them. The closest homes are across the street from the parks and preserves, leaving the streams themselves accessible to the public. (See, Figs. 3-19 and 3-20). The main stream corridor on the western edge of the property is paralleled by a road that does have several homes built on the stream side. However, much of the space along the road is set aside as open public space and has no homes built on it. (See, Figs. 3-19 and 3-21).

Although Vickery lacks the degree of topographic variation present at the Overland Park site, its response to the network of stream corridors provides a better model than Fairview Village. It is particularly useful because it illustrates how the stream corridors can be treated as an amenity rather than an obstacle, and how a trail system can be used as a means of linking the amenities to each other and to the residences.

Fig. 3-19 Vickery Master Plan (DPZ 2008 - no scale)


Fig. 3-20 Park surrounding stream corridor (Virtual Earth 2008)


Fig. 3-21 Stream corridor paralleled by road (Virtual Earth 2008)

Major Street Thoroughfares


Fig. 3-22 (David Vogel 2008)


Fig. 3-23 (David Vogel 2008)


Fig. 3-24 (David Vogel 2008)


Fig. 3-25 (David Vogel 2008)

Adjacent Thoroughfares

The vast majority of traditional neighborhood design projects on greenfield sites are removed from major thoroughfares and therefore do not have to deal with large volumes of traffic passing directly through them. Conventional neighborhood developments also tend to avoid the inclusion of large streets. The typical method of interfacing a residential area with a major street in the United States is to simply create a vegetated berm to separate one from the other physically and visually. Certainly that is the prevailing method of dealing with such spatial relationships in Overland Park, where residential subdivisions turn their backs on the roads that border them. (See, Figs. 3-22 through 3-25).

Though the urge to create some kind of barrier between a potentially noisy and dangerous street and what is ideally a quiet and peaceful residential area is understandable, the effect has been to isolate one subdivision from another and to increase speeds on major streets because there is nothing on the side of the road to slow vehicles. (Girling and Helphand 1994). But there are alternatives to such conventional designs.

The Esplanade

The Esplanade is an attractive and popular street in Chico, California that was built during the 1950s, but looks more like a product of nineteenth century Paris. It is classified as a multiway boulevard – as opposed to a center median boulevard or a boulevard street – primarily because it is "designed to separate through traffic from local traffic" (Jacobs 2002, 5) (See, Fig. 3-26). Typical of many multiway boulevards, The Esplanade has four center lanes designed to carry nonlocal traffic at relatively high speeds, in this case 35-40 miles per hour. The Esplanade actually goes a step further than a typical multiway boulevard because a median divides its four center lanes of traffic, creating two lanes of one-way traffic in each direction on each side of the center median. Two additional medians – one on each side of the main traffic lanes – create barriers between the faster moving nonlocal traffic and the one-lane access roads with on-street parking that run parallel to them. The access roads are lined with single-family residences that face the road, an uncommon sight so close to a street designed to be a major thoroughfare, at least in the United States. (Jacobs 2002). (See, Figs. 3-27 - 3-33).

Multilane boulevards, to the extent they were ever accepted in the United States at all, fell out of favor during the first half of the twentieth century and became still less popular (among designers, but not necessarily their users) after World War II. The primary reason for the design community's disdain for multiway boulevards is the perception among designers that they are dangerous, particularly with regard to intersections (Jacobs 2002).

As it happens, Chico presents an excellent laboratory for comparing the safety of multilane boulevards to that of conventionally designed thoroughfares. Not far from The Esplanade is another busy Chico street, Mangrove Avenue.

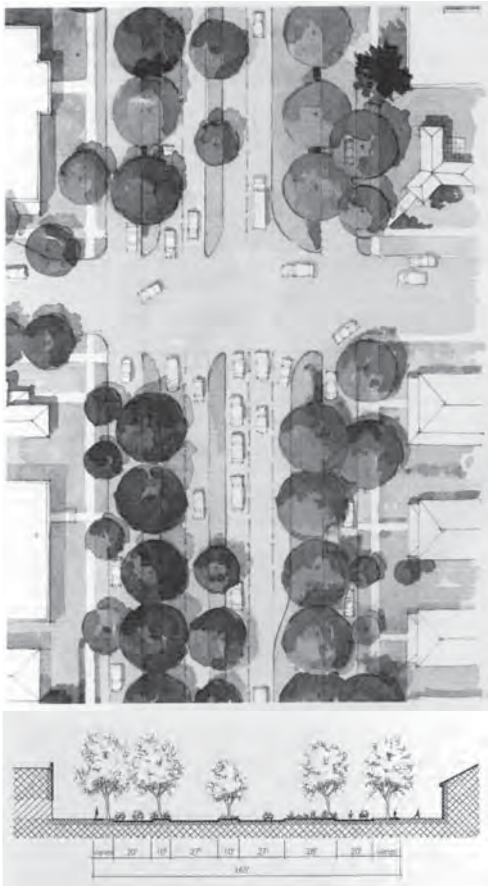


Fig. 3-26 (Jacobs 2002 - no scale)

Fig. 3-27 Esplanade Center Median

Fig. 3-28 Esplanade Main Traffic Lanes

Fig. 3-29 Esplanade Access Road

(All photos this page: Amanda Lockman 2008)

Fig. 3-30 Esplanade Access Road

Fig. 3-31 Esplanade Access Road

Fig. 3-32 House on Esplanade Access Road

Fig. 3-33 Esplanade Intersection

Fig. 3-34 Mangrove Ave. Intersection

Fig. 3-35 Mangrove Ave.

(Figs. 3-30 - 3-32: Barbara Bass 2008; Figs. 3-33 - 3-35: Amanda Lockman 2008)

Like The Esplanade, it is designed to carry four lanes of nonlocal traffic. In addition, it features an uninterrupted left-turn lane and even right-turn lanes at many intersections. (See, Figs. 3-34 and 3-25). Both streets have the same speed limit and experience similar traffic volumes (24,800 daily trips for The Esplanade versus 22,233 daily trips for Mangrove Avenue). Despite significantly more regimented traffic signal arrangements on Mangrove Avenue, supposedly designed to make the street safer than streets like The Esplanade with their more seemingly chaotic intersections, the two streets have nearly identical accident rates (.19 for The Esplanade versus .18 for Mangrove Avenue, measured as the annual number of accidents divided by the volume) (Jacobs 2002).

The Esplanade represents an outstanding model for approaching the design of both 167th Street and Quivira Road through the project site. Substituting multilane boulevards for the conventional arterial street designs typical of Overland Park could convert a potentially negative presence into a very positive feature by increasing the amount of space available for residential lots and creating an amenity for residents. The use of multilane boulevards would also prevent the site from being severed into four distinct and isolated parcels of land as would be the case if the site were intersected by two conventionally designed major arterials.

Monument Avenue

Monument Avenue in Richmond, Virginia is widely regarded as one of the world's great residential boulevards, perhaps even the primary specimen internationally.

> Monument Avenue's street section is deceptively simple. A 40-foot central median is flaked by two 36-foot roadways which in turn are bounded by 10-foot sidewalks. Houses and small apartment blocks are set back 20 feet from the walks, except that porches, when they exist, are only 10 feet back. Buildings are two and one-half to three and one-half stories high.

(Jacobs 1993, 103).

The roadways on either side of the median on Monument Avenue each feature two lanes of one-way travel and one or two lanes for parallel parking, depending on the segment. Contrast that configuration with a typical street designed by conventional standards, which would have only three lanes using the identical width of 36 feet. (Jacobs 1993; Figs. 3-36 through 3-43).

Residences lining the street are close enough that their rear yards are not easily visible from the street or sidewalk. Those residences are an integral part of Monument Avenue. All have front doors that face the street, and many have front porches. But residential buildings are not limited to detached single-family units. A number of multi-family apartment buildings also line the street, allowing people with a variety of incomes to enjoy the same setting. (Jacobs 1993; Figs. 3-36 through 3-43).

More important than the design of Monument Avenue, however, is the fact that it is an active street that serves as a forum for more than just motor vehicles. People can frequently be seen walking, jogging, and bicycling, and the street is often the site of parades and other public gatherings. No wonder, then, that it was designated as a national landmark in 1997, then named by the American Planning Association as one of Ten Great Streets in America in 2007. (APA 2008).

Fig. 3-36 (Andrew Taber 2008)

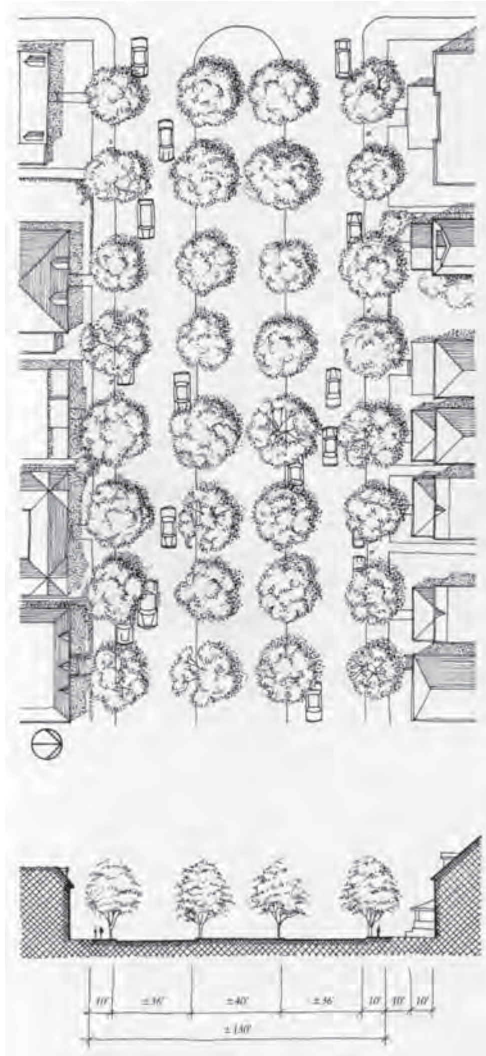


Fig. 3-37 (Jacobs 1993)


Fig. 3-38 (Erin Gobragh 2007)


Fig. 3-39 (Andrew Taber 2008)


Fig. 3-40 (Andrew Taber 2008)


Fig. 3-41 (Andrew Taber 2008)


Fig. 3-42 (Erin Gobragh 2007)


Fig. 3-43 (Andrew Taber 2008)

Euclid Avenue

Euclid Avenue in Chino, Ontario, and Upland, California serves as another interesting example of how a major thoroughfare can interact with residential land uses without severing and segregating the neighborhood. With its 65-foot-wide tree-lined median, it has presented an impressive path for eight miles all the way to the foothills of the San Gabriel Mountains since the late 1880s. (Langdon 1994) (See, Figs. 3-44 through 3-47).

Today Euclid Avenue doubles as California State Route 83. As of 1994 its busiest segment and had a daily volume of 53,000 vehicles. Nevertheless, it is fronted by many detached single-family homes with direct driveway access to the roadway, and does not even have access roads like The Esplanade does. The median and sidewalks parallel to the roadway are frequently used by pedestrians, while bicyclists are often seen using the median and the roadway itself. The road also serves as a “community centerpiece,” featuring public art and events ranging from open-air markets to parades. (Langdon 1994).

Although neither Quivira Road nor 167th Street will carry anywhere near the traffic volume that Euclid Avenue does, the road nevertheless illustrates how the thoughtful design of a major thoroughfare can dramatically affect the way residential developments react to it and how residents will take advantage of such a road despite heavy traffic volumes.

Fig. 3-44 Euclid Avenue (Virtual Earth 2008)

Fig. 3-45 Euclid Avenue Median (City-Data.com 2008)

Fig. 3-46 Euclid Avenue (WestCoastRoads.com 2008)

Fig. 3-47 Miller Parkway (David Vogel 2008)


Fig. 3-49 Amherst Ave. (David Vogel 2008)

Fig. 3-48 (Google Earth 2008)


Fig. 3-50 Amherst Ave. (David Vogel 2008)


Fig. 3-51 Amherst Ave. (David Vogel 2008)

Miller Ranch

Simply adding a median to a street is far from being a sufficient antidote to the kind of separation between street and home that is so common in Johnson County and elsewhere. Miller Parkway and Amherst Avenue in the Miller Ranch subdivision of Manhattan, Kansas are good examples of attractively designed streets with well-maintained landscaping along the sides of the roadway and in a generous center median. (Figs. 3-48, 3-50 - 3-52). However, the streets are in reality nothing more than fancy collector roads, with no homes fronting them. Instead, they merely provide access to widely spaced local roads that, in turn, serve numerous cul-de-sacs. (See, Fig. 3-49). And although the streets carry only a very low volume of traffic, their lanes allow travel at excessively high speeds because they are much wider than necessary. In fact, the pavement is nearly wide enough to serve as a four-lane arterial road. The addition of bicycle lanes on Amherst Avenue was a nice thought, but in practice they are rarely used, perhaps because a sidewalk set back from the traffic lanes provides safer and more comfortable bicycle access.

Miller Ranch provides a useful negative example of a large road through a residential development. The design for the Overland Park site should be careful to avoid the complete separation between street and home that occurs there to achieve a more integrated environment.

Reston

The potentially detrimental effects that a major arterial could have on the residential component of the project is not the only concern. The project will also feature a retail and commercial district that will rely at least in part on nonlocal traffic for its clientele. However, to create a village or downtown atmosphere, it is not desirable to situate businesses directly on an arterial passing through the site. Instead, it is preferable to remove the businesses from the arterial at least far enough to create the appropriate atmosphere. Doing that, however, creates a very real risk that the arterial will simply serve as a bypass, and that nonlocal traffic will be directed around the businesses the same way that highway bypasses have cut off and strangled downtowns all over the United States.

Reston, a 7,400-acre development located twenty-two miles west of Washington, D.C., is a good example of a mixed-use project whose retail component failed largely because it was too far removed from a nearby regional thoroughfare. There, the placement of a retail district at Lake Anne Plaza, more than one mile from the nearest interchange for the Dulles Airport Toll Road, proved to be a serious mistake because travelers proved unwilling to make such a long detour (Gibbs 2008; Gause 2002) (See, Fig. 3-52).

Fig. 3-52 Relationship of Reston's first retail district to nearest highway (Google Earth 2008, modified)

Fig. 3-53 Bypass around downtown
(Google Earth 2008, modified)

Birmingham, Michigan

Birmingham, Michigan is a small city near Detroit that has managed to maintain a vibrant downtown despite the presence of a highway bypass that diverts traffic around its traditional retail core (Gibbs 2008) (See, Fig. 3-53). At first glance, it would seem simple enough that travelers who take the bypass have easy access to downtown by making a simple turn from the highway and then traveling only about one block to the main downtown intersection. (See, Fig. 3-54). However, experience demonstrates that too few drivers are willing to make a 90 degree turn from the bypass into downtown despite the close proximity of the two intersections. Instead, a "retail peel" that allows drivers to continue straight into downtown before beginning the curve of the bypass has successfully attracted travelers downtown (Gibbs 2008). (See, Fig. 3-55). In fact, so strong apparently is the resistance to making a sharp turn off a major thoroughfare that drivers consistently choose the "peel" over a traditional intersection located only a short distance away (Gibbs 2008) (See, Fig. 3-56).

The Reston and Birmingham precedents provide useful insight into how a retail district should be worked into an overall project plan to ensure the viability of the businesses. Seen in the light of both examples, the expansion of 167th Street and Quivira Road may ultimately reveal itself as a blessing if the design takes advantage of the crossroads the two streets will create somewhere near the center of the project site. The key is ensuring that the retail district is close enough to a thoroughfare and accessible enough to drivers on that thoroughfare to draw a sufficient volume of business into the site.

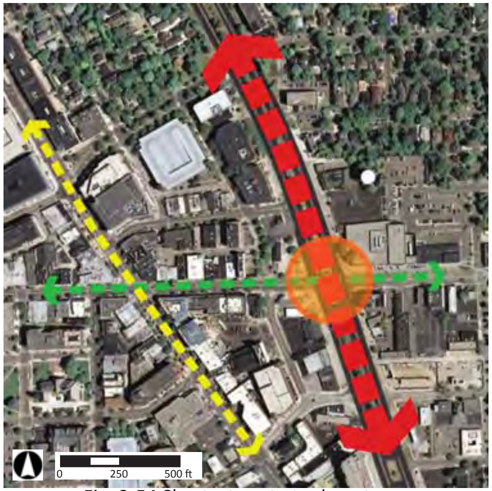


Fig. 3-54 Shortest route to downtown
(Google Earth 2008, modified)

Fig. 3-55 Retail Peel
(Google Earth 2008, modified)


Fig. 3-56 Retail Peel vs Nearby Intersection
(Google Earth 2008, modified)

Connectivity

Simply placing program elements in a plan is no guarantee that the scheme will be a cohesive one that people can use. A neighborhood park, for instance, will not serve the needs of residents even if it is located in close proximity to homes if adequate measures are taken to provide connections between the homes and the park. Stagg Hill Park in Manhattan, Kansas illustrates this issue perfectly.

Opened in 1996, Stagg Hill Park is a small neighborhood park serving the Stagg Hill development in southwest Manhattan. (Fig. 3-57). For residents of nearby Irene Circle, a short street located immediately west of the park, the most direct route to the park is less than 200 feet from the center of the cul-de-sac, perfect for the children who live there. (Fig. 3-58). However, the two homes on Irene Circle with back yards facing the park are the only ones with direct access. Residents of all the other homes must take a circuitous route through the neighborhood - including a segment of collector road wide enough for nearly five lanes of traffic - over a distance of half a mile. (Fig. 3-59).

For children who live on Irene Circle, the park is tantalizingly and frustratingly close. In fact, it is visible from the back yards of homes that do not have direct access to it. (Figs. 3-60 - 3-62). Stagg Hill Park might as well not be there at all as far as residents of Irene Circle are concerned. The idea of allowing young children to navigate a half-mile through the subdivision is simply not a practical - much less safe - option. As a result, an important amenity that may have looked great on a master plan fails to serve the needs of a significant portion of the neighborhood.

Fig. 3-57 (Google Earth 2008, modified)

Fig. 3-58 (Google Earth 2008, modified)

Fig. 3-59 (Google Earth 2008, modified)


Fig. 3-60 The park next door that's half a mile away


Fig. 3-61 House blocking access to park


Fig. 3-62 Looking west from Stagg Hill Park

But it certainly did not have to be this way. Forgetting for a moment about the fact that cul-de-sacs by their very nature tend to pose barriers to movement within a neighborhood, there is no reason why a simple walking path between the homes at the end of Irene Circle could not have been built to provide convenient access to the park. Attention to such details is therefore a vital part of the design process if a project is to become a true neighborhood, and not simply another typical suburban development.

Mixed-Use Projects

CityPlace

Location:	West Palm Beach, Florida
Design Date:	Mid-1990s
Size:	72.9 acres
Designers:	Elkus/Manfredi Architects (master planners and architects) Bradshaw Gill & Associates (landscape architects)
Clients:	City of West Palm Beach, CityPlace Partners, The Related Companies, L.P., The Palladium Company, The O'Connor Group, The Related Group of Florida, and The Ohio State Teachers Retirement System.

Physical Context and Site Analysis

CityPlace was built in a blighted ten-block area of downtown West Palm Beach on Florida's east coast, 67 miles north of Miami. Okeechobee Blvd., a major east-west thoroughfare leading to popular beaches in the area as well as Palm Beach and other affluent communities, cuts through the site, dividing it into two distinct parts. The same road also provides access to I-95 less than a mile to the west and the intercoastal waterway less than half a mile to the east. The Palm Beach International Airport is less than two miles southwest of the site, a drive of about ten minutes. The Kravis Center for the Performing Arts and the School for the Performing Arts are both located immediately west of the site. The Florida Ballet is incorporated into the design and sits in the northeast corner of the site. (Bohl 2002; Google Earth) (See, Figs. 3-63 3-65).

Historical Context

Historically West Palm Beach has enjoyed few of the advantages that nearby affluent communities – notably Palm Beach and its beaches to the east – can boast. By the late 1980s its downtown had nothing to offer outside the typical nine-to-five workday. Few outsiders or even the city's own residents were attracted to the downtown area for any reason other than work. The area "included a number of poorly maintained, underutilized buildings and large pockets of vacant land." (Bohl 2002, 181).

Project Background and History

CityPlace has its earliest roots in the 1980s, when developer Henry Rolfs purchased the land comprising the site. The real estate depression from the late 1980s through the early 1990s dashed Rolfs' initial plan to use the land for a major project. Things began to turn around when newly-elected mayor Nancy Graham initiated an effort to examine how to rejuvenate West Palm Beach's decaying downtown in the early 1990s. The first major development in the area was the Clematis Street district located less than a mile east of what is now CityPlace, which "was transformed into an attractive, pedestrian-friendly retail street." Other successful projects followed. (Bohl 2002, 181-82).

Meanwhile, the 73-acre tract of land where CityPlace now sits had been largely cleared of structures and served as an unsightly "gateway" to West Palm Beach's downtown. Lacking both the funding and expertise, the city was unable to purchase and develop the site itself, so it borrowed money, issued bonds, and entered into a partnership with a developer, the Palladium Company. Using $20 million of borrowed money, the city purchased the site with the understanding that the developer would repay it through a lease agreement, with an option to purchase the property outright after the project was completed. An additional $55 million raised through bond sales was earmarked for the creation of public space at the site. Private financiers provided the remaining $142 million for the project. The city contract was awarded in 1996, ground breaking

Fig. 3-63 Site Location & Context
(Google Earth 2008, modified)

Fig. 3-64 Site Location & Context
(Google Earth 2008, modified)

Fig. 3-65 Site (Google Earth 2008, modified)

occurred in December 1998, and the development opened in October 2000. (Bohl 2002).

Program Elements

Gross Leasable Area

Retail: 600,000 ft²

Office (three buildings): 750,000 ft²

Retail

Approximately 78 businesses ranging from 200 to 3,000 ft² for smaller businesses, with six larger stores and restaurants. Retail tenants include Barnes & Noble, FAO Swartz, Macy's, Pottery Barn, and Restoration Hardware as well as numerous local and regional businesses. There are currently 22 bars and restaurants and a 20-screen movie theater on the site. There is also a Publix grocery store on the site (CityPlace.com 2008).

Residential

Unit Type	Quantity
Private townhouses:	51
Garden apartments:	33
Luxury rental apartments:	128
Mid-rise rental apartments:	264
Rental flats:	38
Live/work lofts:	56
Total	**570**

Parking

3,300 spaces in four parking garages

Civic Uses

1. Harriet Himmel Gilman Theater for Cultural and Performing Arts
2. Central plaza
3. Assorted small urban open spaces
4. An 18-story, 300,000 ft² tower called CityPlace Tower is planned for the site at the northwest corner of the intersection of Okeechobee and Quadrille Boulevards A 440-room hotel initially planned for the site has never been built, and it is unclear whether plans still exist for its construction.

Application of Design Principles

As a mixed-use project intended to evoke the appearance and atmosphere of a European city, the design of streets and sidewalks and the interaction between pedestrians and motor vehicles is an important element of CityPlace. Its streets are lined with parallel parking spaces. Mixed tree species line many of the streets and are planted more sporadically along others. Trellises covered with dense vegetation sit at evenly spaced intervals along the sidewalks in many parts of the development, as do large potted plants. (Bohl 2002).

Sidewalks in CityPlace range in width from six to ten feet and are wider still at key intersections, where neckdowns – often shielded by bollards and lampposts – reduce the distance pedestrians must traverse to cross the street. Brick paving at each of the site's five intersections alerts drivers to the presence of pedestrian zones. (Bohl 2002).

The design of the project's structures is heavily influenced by southern Mediterranean architecture, with "exposed rafters, canvas awnings, tile and metal rooftops, and wrought-iron and wooden balconies" as well as "patios, arches, and trellises." Building heights are typically three stories and building facades extend up to the sidewalks, creating a consistent architectural edge along the street that gives the development a more urban appearance compared to projects with deeper building setbacks and shorter buildings. And despite design guidelines aimed at creating harmony, building facades have enough "variations in style, color, elevation, and material" to avoid repetition or monotony. (Bohl 2002).

To avoid unsightly surfacing parking lots that erode the sense of place, there are four parking garages tucked behind main buildings and linked to the streets and sidewalks via pedestrian walkways. Rosemary Avenue, the primary north-south street through the site, serves as "the central spine of the site." Its intersection with east-west running Hibiscus Street is the location of an important crossroads. At the intersection's southeast corner is the "heart and soul of CityPlace," the former First United Methodist Church and the plaza surrounding it. Built in 1926 using Spanish Colonial Revival architecture, the church has been renamed the Harriet Himmel Gilman Theater for Cultural and Performing Arts and is now used for various performances, community events, and art exhibitions. Surrounding the church is a large newly constructed Italian-style plaza that serves as the project's primary public gathering space. Fountains throughout the site reinforce the southern Mediterranean style, though the fountains in the plaza outside the church are more modern in appearance than others in the project. (Bohl 2002, 185-86, 188; Figs. 3-66 through 3-71).

Relevance to Overland Park Project

Significantly, the presence of CityPlace so close to the Clematis Street development does not seem to have harmed business at the latter. To the contrary, it actually seems to have helped Clematis Street attract other retail shops that did not have a presence in the area before CityPlace was built. As one commentator described this phenomenon, CityPlace "is churning the marketplace." (Bohl 2002, 189).

That phenomenon bodes well for the Overland Park project, where it is likely that other retail development will be constructed within a mile or two of the project site. In addition, because of its location directly on a major thoroughfare, the retail component of CityPlace does not suffer from

Fig. 3-66 Sidewalk and Streetscape
(Tony Barnes 2003)

Fig. 3-68 Covered Sidewalks
(Elkus/Menfredi 2008)

Fig. 3-67 Residential Parking
(Tony Barnes 2003)

Fig. 3-69 Residential Private Space
(Tony Barnes 2003)

Fig. 3-70 Public Plaza (Tony Barnes 2003)

Fig. 3-71 Phillips Place, NC (top) compared to CityPlace (bottom) (Bohl 2002)

the kind of isolation that doomed Reston's early retail district. And while CityPlace's retail district is immediately adjacent to a thoroughfare, it is still necessary for drivers to exit the thoroughfare to access the shops, indicating that the retail district for the Overland Park project need not actually line 167th Street or Quivira Road so long as it is close enough to one or both thoroughfares.

Two additional lessons from CityPlace stand out. First is that a unique identity – in this case the Spanish Colonial Revival or southern Mediterranean them – is an important element. Second, a "center of activity" – in this case the Italian-style plaza – is an important component of the design because of its tendency to draw people to it, "not just as a place to shop, but also as a place to live, to work, to dine, to attend cultural and entertainment events, and simply to gather with friends and family." (Bohl 2002, 189).

Certainly one of the most important factors contributing to an atmosphere that fosters those kinds of activities is attention to design details that cater to and serve the needs of pedestrians. Design elements such as narrow streets, on-street parking, wide sidewalks, shade provided by tree canopies, and pedestrian-friendly street crossings all enhance the overall experience for people strolling through the development. That experience is further heightened by architectural elements such as the Mediterranean-inspired building facades that are harmonious yet varied enough to create visual movement. Finally, the inclusion of a large public plaza helps anchor the development by providing a central gathering space for pedestrians. The result is a successful mixed-use development with an urban village appearance and feeling where pedestrians feel comfortable and welcome because their needs have been given priority over motor vehicles. Duplicating that experience for the Overland Park project should be a primary design goal.

Birkdale Village

Location: Huntersville, North Carolina
Design Date: 1997
Size: 52 acres
Designers: Shook Kelley (master planners and architects)
The Housing Studio P.A. (architect)
LandDesign (landscape architect)
Clients: Inland Retail Real Estate Trust
(Schmitz and Scully 2006)

Physical Context and Site Analysis

Birkdale Village is located fifteen minutes north of downtown Charlotte. Like CityPlace, the project sits immediately adjacent to a major thoroughfare, in this case Sam Furr Road, which runs across the south border of the site and provides access to Interstate 77 just east of the site, which gives the project good regional transportation access. (Fig. 3-72). The site is bordered on the east by an office park and on the north by the Greens at Birkdale, a 137-acre residential development with 362 single-family homes and 129 townhomes (Schmitz and Scully 2006).

Historical Context

Huntersville, North Carolina and other smaller towns near Charlotte adopted new development codes during the mid-1990s that encouraged mixed-used development in an effort to rein in massive growth and the accompanying sprawl that had been the prominent development pattern in the area. Constructed on a greenfield site, Birkdale Village was the first large-scale project in Huntersville to emerge from the city's approval process.

Program Elements

Gross Leasable Area

Retail	233,000 ft²
Office	54,000 ft²
Entertainment	53,000 ft²
Total	340,000 ft²

Residential

Unit Type	No. of Units
1 bedroom	98
2 bedroom + loft	56
1 bedroom + den	17
2 bedroom	108
2-bedroom townhouse	19
3-bedroom townhouse	22
Total	320

Parking

1,354 spaces total, including four parking garages and surface parking

Application of Design Principles

The streets and blocks of Birkdale Village are organized in a grid system, with multiple points of ingress and egress to the site. Retail and commercial uses are clustered along the project's main corridor, which features a wide grassy strip between lanes of travel and is lined by 10-foot-wide sidewalks fronted by building facades. The "village green," as the vegetated strip is known, serves not only as a traffic buffer but also as a community gathering spot for various events and activities. On-street parallel and angled parking complements four parking garages situated behind the buildings that comprise the main retail corridor, while surface parking lots serve big-box retailers in the southeast portion of the site. The project's architecture and other design elements are patterned on a traditional New England coastal town (Schmitz and Scully 2006; Fig. 3-73).

Fig. 3-72 Context Map (Google Earth 2008, modified)

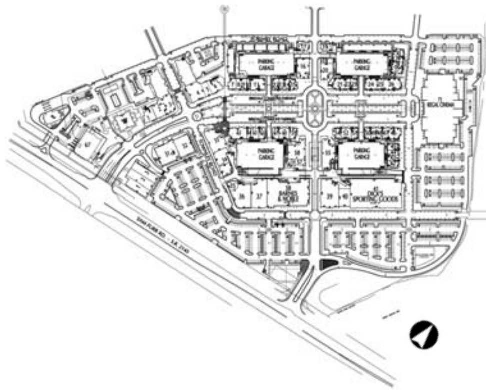


Fig. 3-73 Master Plan
(BirkdaleVillage.net 2008 - no scale)

Buildings in the project are typically two or three stories, with retail on the first floor and residences and offices on the upper floors. The four parking garages have public parking on the ground level, with private parking on the upper levels reserved for tenants. The garages provide direct access to upper level residences via walkways, eliminating the need for residents to go down to the street level to access their vehicles, though residents do have the option of using stairs to access the street level of the main street (Schmitz and Scully 2006; Figs. 3-74 through 3-82).

Based on consumer behavior studies, the designers chose a maximum block length of 400 feet to promote walking and attract people to the sidewalks and store fronts. Sidewalks in front of the stores and lining the village green give users convenient access to their vehicles, particularly for loading and unloading. The design also reflects efforts to minimize the distance users must walk between their vehicles and the shops and other attractions the project offers. The site does include pedestrian connections to surrounding land uses, but experience has shown that the primary means of travel to the site remains vehicular (Schmitz and Scully 2006).

<u>Relevance to Overland Park Project</u>

The success of Birkdale Village illustrates how dense mixed-use projects can succeed in greenfield sites, as opposed to infill sites that often have the benefit of being surrounded by other dense land uses from the outset. The design of the project is fairly simple. It is essentially a pair of strip malls facing each other across a wide boulevard, with residences and offices stacked on top and parking tucked behind. However, the project has anything but a strip mall appearance, with the exception of the southeast portion of the site that features big-box retail stores such as Dick's Sporting Goods and Barnes & Noble.

Fig. 3-74 (Google Earth 2008)

Fig. 3-75 (BirkdaleVillage.net 2008)

Fig. 3-76 (Claudia Tate 2008)

Fig. 3-77 (Virtual Earth 2008)

Fig. 3-78 (Virtual Earth 2008)

Fig. 3-79 (Claudia Tate 2008)

Fig. 3-80 (Claudia Tate 2008)

Fig. 3-81 (Claudia Tate 2008)

Fig. 3-82 (Claudia Tate 2008)

In addition to offering lessons on how to design the streets and blocks to create a sense of place, Birkdale Village also illustrates how a town center environment can relate to an adjacent thoroughfare without sacrificing the integrity of its design. By offering multiple points of ingress and egress, the entire site has more of a village feeling to it because vehicles can enter the main retail and entertainment district by passing through a number of secondary smaller streets, also lined with stores.

As with the site for the Overland Park project, there are no regional shopping malls near Birkdale Village, creating the opportunity for the project itself to become a regional draw. That same opportunity exists for the Overland Park project if it can successfully create a retail district that relates well to the major thoroughfares that will pass through the site. At the same time, the Overland Park retail component must be integrated with the project as a whole, including the single-family residential that will occupy most of the project site. The drainage corridor that separates Birkdale Village from the single-family detached homes north of the site, combined with the fact that there is no transition between the Village and the homes, has resulted in a failure to create the level of integration ideal for a New Urbanist communities. The Overland Park project must do a better job of integrating the single-family housing if it is to succeed at that level.

Villebois

Location: Wilsonville, OR
Design Date: 2001
Size: 482 acres
Designers: Fletcher Farr Ayotte (Lee Iverson (residential architect) Walker Macy (landscape architect and planner)
Client: Costa Pacific Communities
(Girling and Kellett 2005)

Physical Context and Site Analysis

Villebois (pronounced Veel-bwa) is currently being developed on the site of the former Dammasch State Hospital in Wilsonville, Oregon, a town with a population of approximately 14,000 people located 20 miles south of Portland. Its name translates loosely as "village near the woods" and is named for the French Prairie heritage that characterizes the area. (Girling & Kellett 2005; Villebois Master Plan 2006).

Fig. 3-83 Proximity Map
(Villebois Master Plan 2006)

The project site is located north of the Willamette River and west of Interstate 5. Tracks for the WES Commuter Rail that runs to Portland is situated between the interstate and the project site. (Villebois Master Plan 2006; Fig. 3-83).

Much of the site for Villebois - particularly the center - consists of a wooded hilltop. Wetlands and largely preserved open areas dominate the southwest and east portions of the site. The southwest corner is also heavily wooded. Existing residential subdivisions designed according to conventional standards sit adjacent to the site's southeast boundary. (Villebois Master Plan 2006).

Program Elements

Although precise quantities and areas of program elements have not yet been specified due to the ongoing nature of the project, the master planning documents are instructive on the issue. Villebois is intended to have approximately 2400 residential units, 160 acres of outdoor space (22% parks and 78% natural areas), a 10-acre elementary school (including three acres of parkland), and a 48-acre mixed-use village center featuring retail, office, and entertainment venues as well as a large number of attached and stacked residential units. (Villebois Village Master Plan 2006; Figs. 3-84 and 3-85).

Figure 3-86 illustrates approximate land use allocations based on the latest planning information while Figure 3-87 illustrates the layout and relationships of the various land uses. Although square footage information for the retail component of the project is not yet available, the size of the mixed use component is deceiving because the master plan includes attached and stacked residential units within the definition of mixed use even where no non-residential component is integrated with the structure. The best estimate currently available regarding the amount of retail likely to be built is that it will exceed 21,600 square feet. (Villebois Master Plan 2006; Hogue 2006). Table 3-1 sets forth the anticipated breakdown of residential types and quantities.

Fig. 3-84 Village Center (villebois.net 2008)

Fig. 3-85 Village Center (villebois.net 2008)

Approximate residential breakdown

LAND USE	DENSITY** (Net)	UNITS	ACRES
Specialty Condos	50	127	2.0
Mixed Use Condos	40	104	2.3
Urban Apartments	35	90	2.4
Condos	30	127	3.9
Village Apartments	30	411	13.1
Neighborhood Apartments	20	40	1.8
Rowhouses	16	431	24.3
Small Lot Attached	13	185	15.3
Small Lot Single Family	10	334	33.0
Medium Lot Single Family	8	318	30.2
Standard Lot Single Family	5	210	31.9
Large Lot Single Family	4	100	17.7
Estate Lot Single Family	3	16	5.9
TOTAL	13	2493	183.8

Table 3-1 (Villebois Master Plan 2006)

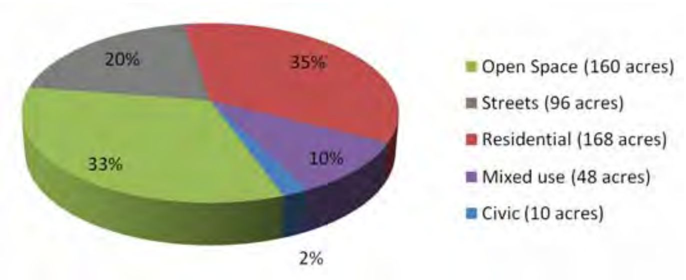


Fig. 3-86 Approximate Land Use Allocations
(Adapted from Villebois Master Plan 2006)

Fig. 3-87 Master Plan (villebois.net 2008)

Fig. 3-88

Application of Design Principles

The design for Villebois follows the principle of distinct neighborhoods, each with a quarter-mile radius and a defined center. The project will include a total of three neighborhoods. At the confluence of those neighborhoods will be the village center. The plan calls for greenways and roadways to define neighborhood edges and create linkages through and between neighborhoods. The greenways will also be integrated with the larger park and open space plan, providing pathways for movement throughout the entire site. (See, Figs. 3-88 through 3-91).

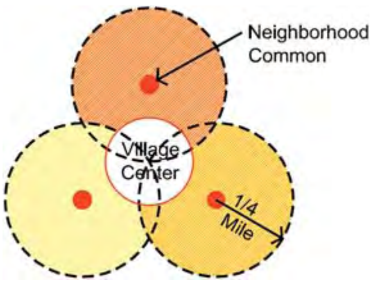


Fig. 3-89 Conceptual Diagram - Neighborhoods

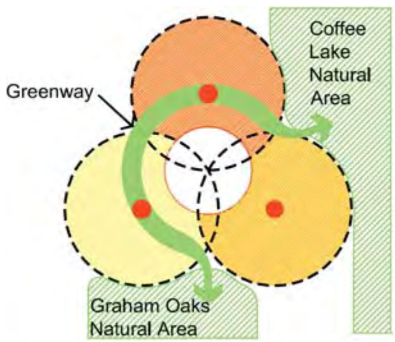


Fig. 3-90 Conceptual Diagram - Greenway

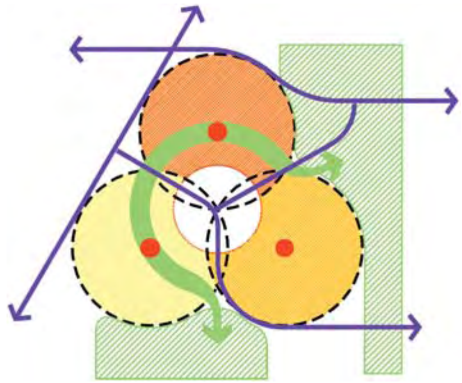


Fig. 3-91 Conceptual Diagram - Roadways

Diagrams: Villebois Master Plan 2006

Two significant aspects of the Villebois program that go hand in hand are providing public outdoor space for recreation and education and protecting environmental assets and managing stormwater. The master plan divides the outdoor space into six categories: (1) Pocket parks, .13-.68 acres each; (2) Neighborhood parks, .52-2.9 acres each; (3) Community park associated with elementary school and intended to serve not just Villebois but also the surrounding community, 3 acres; (4) Regional park system intended to draw people from outside the project boundaries, .59-9.2 acres each, totalling 33.45 acres; (5) Open spaces characterized as natural preserves, including wetlands, forests, and grasslands, and totaling 101. 5 acres; and (6) Trails and pathways, consisting of .71 miles of nature trails, 1.2 miles of minor pathways (pedestrian and bicycle connections between neighborhoods), 2.9 miles of major pathways, and 42.7 miles of sidewalks and bicycle lanes providing connections throughout the entire project site. (See, Fig. 3-92).

Fig. 3-92 Park and Open Space Plan (Villebois Master Plan 2006)

Although construction of the project is only in the first of three anticipated stages, already the park and open space system is taking shape. At this point efforts have been focused on serving the needs of residents by placing parks and other open spaces close to new homes in the development. However, as construction proceeds many of these smaller components will be linked together and also connected to the larger open space scheme planned for the project. (Villebois Master Plan 2006; Figs. 3-93 to 3-98).

Fig. 3-93

Fig. 3-94

Fig. 3-95

Fig. 3-96

Fig. 3-97

Fig. 3-98

Photos: villebois.net 2008

Beyond the principles of traditional neighborhood design, the master plan for Villebois includes a comprehensive stormwater management plan that prescribes onsite detention facilities to treat and maintain predevelopment runoff quantities up to a 25-year storm event. (Villebois Master Plan 2006).

Program components designed to deal with stormwater include the use - and in some cases expansion or improvement - of existing wetlands and the construction of ponds, swales, rain gardens, artificial wetlands, and bioretention cells such as planter boxes. Much of the retention will occur in a series of mitigation ponds along the Greenway. Design standards also call for porous pavement and pavers in certain circumstances to increase infiltration before water has a chance to reach stormwater detention facilities. Plans even exist to test at least two green roofs within the village center. (Villebois Master Plan 2006; villebois.net 2008; Figs. 3-99 to 3-104).

Fig. 3-99 Small Retention Pond

Fig. 3-102 Planter Boxes

Fig. 3-100 Large Retention Pond

Fig. 3-103 Rain Garden

Fig. 3-101 Porous Pavers

Fig. 3-104 Retention Pond as an Amenity

Photos: villebois.net 2008

Relevance to Overland Park Project

Villebois presents an excellent model for the Overland Park project on a number of levels. Its similar size, suburban character, and existing natural resources provide guidance for areas and ratios of program elements such as open space, parks, residential, and streets. The breakdown of specific types of residential quantities and ratios is also instructive.

In terms of physical design and planning, Villebois offers an intriguing master plan with well-integrated program elements and a tightly-knit network of streets. The same principles applied to its layout and structure can carry over to the Overland Park project. The extensive use of green corridors to define neighborhood edges and provide routes for travel throughout the project for pedestrians and bicyclists both from within the development and beyond its boundaries is also applicable to the Overland Park project site. In particular, the idea of using a green "ribbon" to unify the entire project is likely to be helpful.

The classifications of parks and their distribution throughout the project includes sufficient detail to apply similar principles to the Overland Park project. Not only the quantities and types of parks are important. Their spacing, proportions, and programming are also significant.

Finally, the provisions for stormwater management at Villebois provide an outstanding model for integrating modern stormwater techniques with traditional neighborhood designs, a subject that frequently receives little attention in even some of the highest profile traditional neighborhood projects in the United States.

Introduction and Methodology

The process of developing a program for the project begins with considering the issues examined during the inventory and analysis in light of the dilemma and thesis, the goals and objectives that emerged from that the dilemma and thesis, and the overall philosophy for the project, in concert with the precedent studies and the principles that will influence the project program and design. (See, Fig. 4-1). The synthesis of all those factors is the subject of this section.

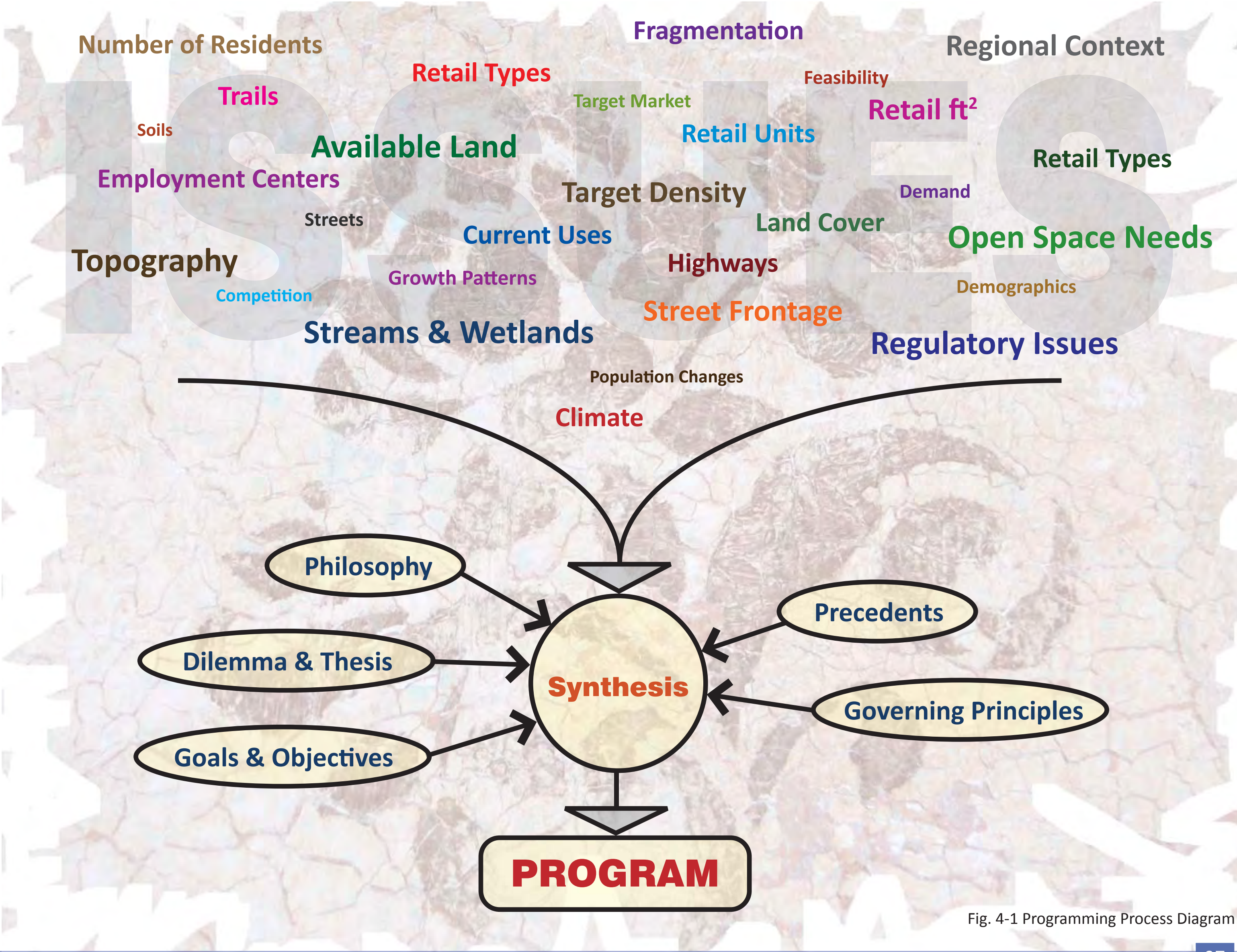


Fig. 4-1 Programming Process Diagram

Program Development

General Program Elements

Determining the elements of a traditional neighborhood design is not a simple matter of applying a design recipe. There are simply too many variables for a standard program to be practical. However, certain components are generally viewed as vital to addressing the kinds of issues identified in the dilemma and thesis. Considered in the context of the inventory and analysis already conducted, the following general program elements are appropriate for the project:

1. Retail, commercial, dining, and entertainment venues;
2. Residential, including a variety of styles and sizes of detached single-family homes, townhomes, condominiums, apartments, and live-work units;
3. Public open space in the form of parks, ponds, streams, plazas, squares, trails for pedestrians and bicycles, playgrounds, and the like;
4. Civic uses such as churches, schools, and libraries;
5. Public amenities such as pools and recreation centers;
6. A compact village center with a mix of land uses from the above list, including residential units stacked on top of retail and commercial uses.;
7. Alleys serving the rear sides of buildings in both residential and retail/commercial areas;
8. Links between points within the project and beyond its boundaries, with special emphasis placed on connections from residences to open spaces and the village center.
9. Adequate parking to accommodate residents and visitors in the form of surface lots and parking garages as may be appropriate in each case.
10. Block lengths should average approximately 250-350 feet, with a maximum of 500 feet.
11. Streets should create a sense of enclosure by employing a street width to building height ratio of 2:1 to 3:1.
12. A variety of street types and sizes as appropriate for the given context.

(See, e.g., Steuteville 2003; Burden 1999; Schmitz, et al. 2003; Walters and Brown 2004; Gause 2007; Farr 2007; Carmona, et al. 2006; Schmitz and Scully 2006).

In addition to the program elements gleaned form general principles of traditional neighborhood design, the project must also include alignments and designs for the segments of 167th Street and Quivira Road that pass through the project site. The designs for both streets are flexible and should not be limited to the conventional models that currently dominate the Johnson County landscape. Instead, they should be designed in such a way that they serve the needs of both the project and the wider community and to make them an integral component of the project rather than an obstacle or a nuisance.

Urban-Rural Transect

The urban-rural transect also serves as a valuable tool for assisting in the identification of general program elements and goes a step further by establishing a framework for sorting out organizational issues for those elements. (Fig. 4-2). Developed as an urban design tool, the transect "arranges in useful order the elements of urbanism by classifying them from rural to urban." (Steuteville 2003, p. 1-5). The transect is divided into seven zones (T1 through T6, plus a Special District zone), each with its own unique qualities and design characteristics.

A common error when trying to design a project with a mix of uses is the failure to actually integrate those uses. The transect seeks to overcome that challenge by focusing on the development of "'immersive environments': urban places in which the whole is greater than the sum of the parts."

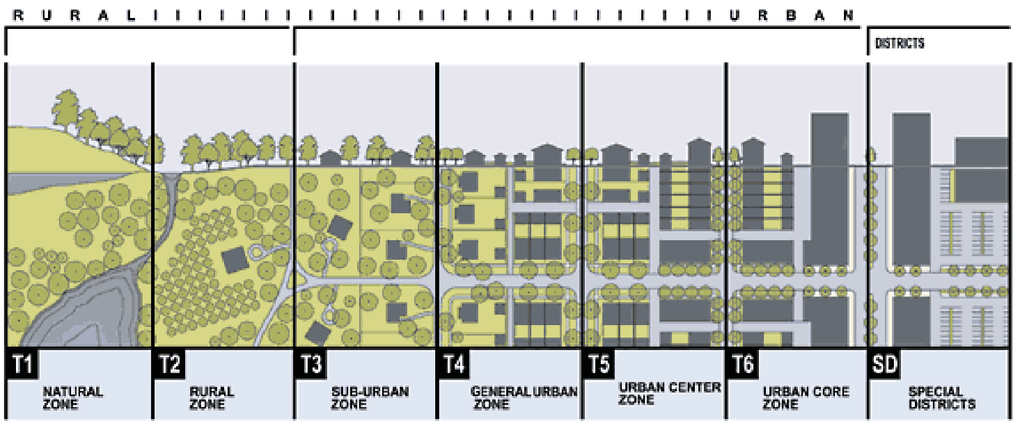


Fig. 4-2 Urban-Rural Transect (DPZ 2008)

(Steuteville 2003, p. 1-5). By examining each zone within the transect, a general picture of how a project should be organized comes to light.

The urban core and urban center (zones T6 and T5 respectively) "have the most intense urban character and the greatest density." Buildings tend to be relatively large and are flexible enough to accommodate a variety of uses, often with retail and commercial uses on the ground floor with residential units on the upper floors. The urban core is associated primarily with downtowns in large cities, while the urban center is associated primarily with "smaller downtowns or main streets, where the buildings top out at two to four stories." Typical building setbacks are zero to ten feet. A variety of lot sizes can be represented, with widths as narrow as 18 feet and varying significantly from that point depending on the use. Residential densities can range from 15 to more than 100 units per acre. Open spaces usually take the form of plazas and squares. (Steuteville 2003, p. 1-5).

The general urban area (zone T4) "is primarily residential, but still relatively urban in character." A fairly broad range of housing types exist there, including detached single family, duplex, townhomes, accessory units, and even small apartment buildings (with a maximum of approximately eight units) if sufficiently blended with other buildings. Building setbacks are in the range of five to twenty-five feet. Lots range from 18 to 30 feet wide and 90 to 130 long. Alleys should serve garages located behind homes. Residential densities are typically six to twenty units per acre. Parks and greens are the prototypical open spaces. (Steuteville 2003, p. 1-6).

The suburban area (also called the neighborhood edge) occupies zone T3. Although often equated with the Olmstedian suburbs in the United States of the early twentieth century, it can still feature a mix of uses, including civic buildings such as churches, schools, and community centers, and even some stand-alone stores. Building setbacks are larger, usually ranging from twenty to thirty feet. Because alleys are not always prescribed, front-loaded garages are not uncommon. Lot sizes tend to be 50 to 80 feet wide and 110 to 140 feet long. Residential densities are lowest in this area, ranging from two to eight units per acre. (Steuteville 2003).

Beyond the suburban zone lie the rural reserve (zone T2) and the rural preserve (zone T1). The rural reserve "includes areas that can potentially be built upon, but where development is not currently encouraged." The rural preserve is typically "designated to remain permanent open space." (Steuteville 2003, p. 1-7).

The final component of the urban-rural transect is the special district, employed "to accommodate uses that are inherently hostile to pedestrians." Special districts are typically separated deliberately from the six primary zones in the transect and include transportation facilities, bus depots, industrial areas, wastewater treatment facilities, auto-oriented businesses, and the like. (Steuteville 2003, p. 1-7). Special districts are not a component of this project

There is no formula for determining the quantities or ratios of the various land uses or the densities of residential dwellings in a traditional neighborhood design. For instance, recent projects exhibit a wide range of retail space – from as little as 5,000 to more than one million square feet – and average residential densities in some of the most well-known projects range anywhere from 3.5 to 12 units per acre. Nor is it necessary for every traditional neighborhood design to include all the zones of the transect or for land uses within the project to be equally distributed across the transect. Instead, a complex combination of factors must be taken into account to develop the program for each project, including location, context, market conditions, user demand, competition from other projects, and the nature of the project site itself. (Steuteville 2003; Girling & Kellett 2005).

Zimmerman-Volk Study

One good resource for narrowing the program framework is a study conducted in 2001 to assess the market potential for a traditional neighborhood development on a 296-acre tract of land located less than three miles northeast of the project site (plans for a traditional neighborhood design were eventually replaced by the Shawnee Mission Hospital project). After accounting for the expansion of roads, potential non-residential uses, slopes, wetlands, and ponds, the study calculated that approximately 225 acres of developable land existed on the site. Of that, 35 percent – or approximately 79 acres – was set aside for rights-of-way and small neighborhood pocket parks. (Zimmerman-Volk Associates 2001).

The authors of the study applied their own proprietary market analysis methods to the Johnson County market to determine the residential program. The product of that analysis was that the 146 acres available for residential development would yield approximately 1,200 units broken down as set forth in Table 4-1. Although the report points out that the figure of 1,200 units should only be considered an estimate and that the total number of units could change depending on the design, it also noted that the proportions set forth in Table 4-1 should be adhered to as closely as possible regardless of the final number of units. (Zimmerman-Volk Associates 2001).

Based on its market analysis and the optimum residential mix, the report concludes that the likely household types within the development would be 31% empty-nesters and retirees, 44% families, and 25% childless young single and couples. Those figures are consistent with more recent demographic data for Johnson County. (Zimmerman-Volk Associates 2001; MARC 2008; Johnson County 2008).

Using the Zimmerman-Volk study as a baseline, it is possible to establish guidelines that, while still approximate and flexible, help shape the program for the project. The project's 366 developable acres could yield a maximum of 1,950 residential units, broken down into the following broad categories and quantities:

665 stacked multi-family
160 attached multi-family
427 low-range detached single-family
433 mid-range detached single-family
265 high-range detached multi-family

Housing Type	Percent of Total	Number of Units	Ave. Density or Lot Dimensions
Multi-family for-rent (Courtyard Buildings)	24.60%	296	35 du/acre
Multi-family for-sale (Townhouses or Condominiums)	9.50%	114	30 du/acre
Single-family attached for-sale (Rowhouses)	8.20%	98	24-30' x 110'
Low-range single-family detached	21.90%	262	
(Village Houses)	(10.95%)	(131)	48' x 110'
(Large Village Houses)	(10.95%)	(131)	54' x 120'
Mid-range single-family detached	22.20%	266	
(Neighborhood Houses)	(14.40%)	(173)	60' x 120'
(Large Neighborhood Houses)	(7.80%)	(93)	72' x 130'
High-range single-family detached	13.70%	164	
(Mansions)	(9.30%)	(112)	84' x 130'
(Custom Houses)	(4.40%)	(52)	96' x 140'
TOTAL	**100.00%**	**1,200**	

Table 4-1 2001 Study Optimal Residential Mix
(Adapted from Zimmerman-Volk Associates 2001)

In addition to the residential units, a potential developer for the property has concluded that a retail/commercial component of approximately 90,000 square feet is ideal for the project. Much of the stacked multi-family units would be situated above those retail/commercial uses.

Neighborhoods

The precise numbers of all the program elements are highly dependent upon the final design because the amount of linear street footage will dictate the maximum quantities. The next step toward determining the precise numbers is therefore the development of conceptual diagrams to aid in the quantification and placement of the program elements.

The basic building block of a community is the neighborhood, which has a defined center and edge. The size of a neighborhood is determined by the distance a pedestrian can walk from the center to the edge in five minutes, which translates to one-quarter mile. (Steuteville 2003). The project site is conveniently proportioned in that regard because it is essentially three contiguous quarter-sections, each of which measures one-half mile on each side. Theoretically the project site can therefore be divided into three neighborhoods of equal size and dimensions. (Fig. 4-3). This is not to say that in practice the neighborhoods must be perfectly symmetrical or that the center of each neighborhood must be in the geographic center of its respective neighborhood. However, visualizing the three neighborhoods in conceptual form is an important step toward developing a more precise program and allocating the program elements geographically across the site.

It is not necessary - or even possible or desired - for neighborhood centers to all have the same program elements. Instead, the overall character of each neighborhood center should be the result of careful attention to the same factors that formed the foundation for program designated for the overall project.

In this case, the project size, the restraints imposed by the existing natural systems, and the developer's target of approximately 90,000 square feet of combined retail and commercial leads to the logical conclusion that all or nearly all that retail and commercial should be concentrated in a single location. One of the three neighborhood centers should therefore serve that function by hosting a dense mixed-use development, while the other two should reflect programs better suited for their particular settings. (Fig. 4-4).

The best location for the mixed-use component of the project is somewhere in the northwest quadrant of the site for a number of reasons: It has generally low slope percentages, allowing larger contiguous program elements without excessive disturbance of the natural environment; it has the largest uninterrupted area of land on the site; its relatively high elevation gives it a prominent position in the landscape and creates opportunities for focal points; it is near the future trail system along Coffee Creek that will create regional access for pedestrians and bicyclists; and it has access to a potentially high volume of traffic at what will likely become the crossroads of Quivira Road and 167th Street. In fact, it would be best to shift the neighborhood center east of the geographic center to situate it closer to Quivira Road.

The other two neighborhoods also need defined centers. Each should have its own unique character to create diversity within the project and to provide each neighborhood with its own sense of identity. The components of the neighborhood centers must also be such that they clearly convey to all who see them that they are just that: defined neighborhood centers. Densities and uses should correspond with the T4 into the lower end of the T5 zones, with relatively dense residential uses in the form of townhomes, apartments, live/work units, and perhaps some limited small-scale retail and commercial uses.

The neighborhood center for the northeast quadrant of the site could focus on the stream corridor and series of ponds located just east of the existing farm buildings. Concentrating the higher density uses close to the ponds would create a higher level of activity and distinguish that area from lower density uses on its fringes, further establishing that point as the discernible center of the neighborhood.

The neighborhood center for the southwest quadrant of the site has a substantial amount of open land and could therefore be situated around a larger village green, park, or other public open space, perhaps in coordination with the stream corridors running through that portion of the site. A neighborhood center in that portion of the site might be more geographically remote from the mixed-use center than the neighborhood center for the northeast quadrant of the site, and might therefore be less dense. Such lower densities would also seem to be more appropriate if the neighborhood center is a park-like setting.

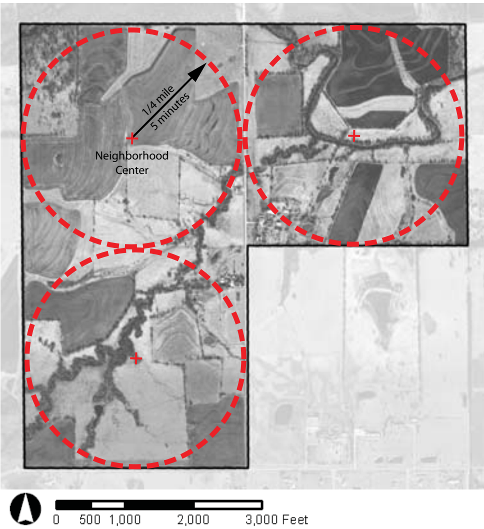


Fig. 4-3 Conceptual Map of Neighborhoods (Adapted from DASC 2008)

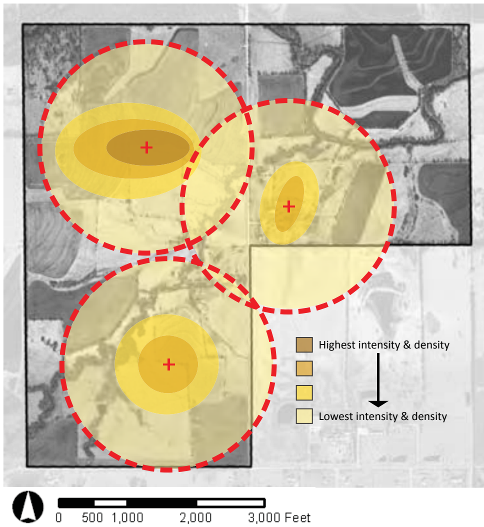


Fig. 4-4 Revised Conceptual Map of Neighborhoods (Adapted from DASC 2008)

Fig. 4-5 Overlay of Village Center at King Farm (Adapted from DASC 2008)

In terms of the actual acreage likely to be occupied by a mixed-use village center on the project site, Figure 4-5 is useful for understanding how much space would be required. The village center of King Farm in Rockville, MD, which consists of a 118,000-square-foot retail district covering approximately thirteen acres, is represented by the black figure-ground image, scaled to the project site. Despite the fact that King Farm's village center contains 28,000 square feet of retail more than the developer of the project anticipates, it still fits on the project site without overwhelming it. In fact, it is very close in size to the neighborhood center for the northwest quadrant of the site illustrated conceptually in Fig. 4-4. The overlay also shows why the northwest quadrant of the site is the only part of the site that has enough space for the mixed-use component of the project.

Although the example of King Farm serves as a useful baseline for establishing the physical size of a mixed-use district for the project, it is by no means the only viable option. It is not difficult to imagine a wide range of possible program options that would affect the sizes, characteristics, and locations of both the mixed-use component and the other land uses.

Land Use Allocations and Final Program

There are a number of different land use allocation combinations that could form the basis of the design, from an emphasis on the highest density possible to the preservation of the maximum amount of open space. Given the rural character of the project site and the low density of existing and even most future projects in the area, a program that emphasizes open space and the rehabilitation of the stream corridors is most appropriate. Focusing on open space would also distinguish the project from prevailing development patterns in Johnson County both aesthetically and functionally. Considering the site's relationship to the future expansion of the MetroGreen trail system, providing a large quantity of open space would facilitate functional connections to the trail system and create opportunities to distribute internal trails within the site itself.

Table 4-2 establishes the program components of the final design. Arriving at quantities and areas for the final program began with establishing the boundaries of open space adjacent to the stream corridors. That process necessarily involved setting the alignments for major streets adjacent to and through the project site. With those two components in place, the next step was to design the overall layout of the project, using streets and blocks as the basic components.

An integral part of designing the layout of the design was determining the size of the mixed-use component, particularly the amount of square feet of retail, commercial, dining, and entertainment uses. A survey of similar projects around the United States suggests that 90,000 square feet (suggested by the Zimmerman-Volk study) would be toward the low end of the scale in terms of space for a mixed-use component and that a larger village core may be more appropriate for purposes of drawing users from a wider geographic area. Given the project site's proximity to what is considered to be the next major growth corridor in Johnson County, increasing the square footage of the mixed-use component to 120,000 is justified.

Finally, after determining appropriate ratios of the four major types of residential units, the number of linear feet of street frontage was measured and used as the basis for determining the maximum number of residential units that can reasonably fit in the design without compromising the goals and objectives of the project.

Final Program

188 acres public open space
1648 residential units
- 200 apartments/condos
- 608 townhomes/live-work units
- 720 small-medium detached single family
- 120 large single family

16 acres civic
- 10 acres elementary school/pool
- 6 acres other

120,000 square feet retail/commercial

Table 4-2 Final Program

Character and Function

The form and performance of program elements for the project can draw inspiration from prototypical traditional neighborhood designs to help illustrate not only the look and feel that the final design will attempt to create, but also the functions that the final design seeks to fulfill. The examples presented here help illustrate the form and function of the various zones within the project, from the village core (corresponding with zone T6) to the stream corridors (corresponding with zone T1). The purpose of Figure 4-6 is to assign a visual model for each of the six primary zones of the urban-rural transect by drawing upon examples from previous projects by various designers. The forms illustrated therein can serve as guidance for the project's final design.

Urban Core (Zone T6)

newtownatliberty.com 2008

costapacific.com 2008

Urban Center (Zone T5)

villageoflisle.org 2008

skyscrapercity.com 2008

General Urban (Zone T4)

cityftmyers.com 2008

newtownatliberty.com 2008

Fig. 4-6 Visual model of urban-rural transect zones

Sub-Urban (Zone T3)

newtownatliberty.com 2008

newtownatliberty.com 2008

Rural (Zone T2)

fpointdesign.com 2008

brytan.com 2008

Natural (Zone T1)

pbrt.org 2008

investinhearts.com 2008

Conventional Master Plan Example

Perhaps the most effective way to demonstrate what sets this project apart from conventional forms of development is to begin with an example of what the project might look like if it followed design standards prevalent in Johnson County. An engineering firm in Kansas City created a concept plan for what it calls a mixed-use development on the Verhaeghe property in 2006. Using that plan as a framework, it is possible to create a hypothetical master plan based on conventional design standards. (Fig. 5-1). Several lessons can be learned from the conventional result.

First, the plan exhibits a design strategy that might be more accurately called "proximate use" rather than "mixed use." While the design does include a variety of land uses – including stand-alone single-family residential, townhomes, commercial, parks and recreation, and even a small civic space – those uses are all physically segregated from each other. Within the category of residential uses, single-family homes are segregated from townhomes, the latter being relegated to isolated pods. Even single-family lots of different sizes tend to be separated from one another.

Second, nearly the entire network of stream corridors – particularly in the western half-section of the site – is effectively privatized because the residential lots back right up against the stream setback without any intervening streets or other public spaces. (Fig. 5-2). As a result of that arrangement, precious few public access points to the stream corridors are available. Any trail system that might be placed within the setbacks will be largely hemmed in by privately owned land, evoking the Fairview Village project in Fairview, Oregon, discussed in the Precedent Studies. The stream corridors therefore become obstacles rather than amenities, and their presence has an overall negative effect on the design.

Fig. 5-1 Hypothetical Master Plan Following Conventional Design Standards

Third, no effort is made to create linkages across the stream corridors. Without more public space adjacent to the corridors, there are too few locations for pedestrian bridges over the streams, further enhancing the negative effect of the way the stream corridors are addressed by the design.

Fourth, the alignment of 167th Street has the effect of severely fragmenting the site. The small developable land north of the street becomes completely isolated from the land south of it, frustrating any effort to create a cohesive neighborhood structure.

Fifth, the development as a whole turns its back on Quivira Road and 167th Street by inserting large setbacks between residential lots and the streets. (Fig. 5-3). That same design strategy - also seen in all the existing neighborhoods near the project site as reviewed in the precedent studies - will increase the speed of traffic on adjacent streets and fail to create any sense of place perceptible from those streets.

Sixth, because residential areas have no obvious centers, neighborhood structure is further degraded. This is exacerbated by the fact that the retail and commercial areas are not centrally located and relate poorly to the residences.

Seventh, the extensive use of needlessly winding roads and cul-de-sacs (the “loops and lollipops” pattern) creates a street system that is confusing and that would prevent ease of movement throughout the development for residents and visitors alike. Such an arrangement could easily lead to the kind of problem illustrated by Stagg Hill Park, discussed in the Precedent Studies. A street network diagram illustrates the lack of a cohesive transportation grid and highlights the poor connectivity within the site. (Fig. 5-4).

Finally, the development appears to have been laid out without any regard for the existing topography. Rather than accommodating the landform, the design imposes itself on the site. A more thoughtful design would take the terrain into account with regard to issues such as drainage and views and would also use high points for the most prominent program components.

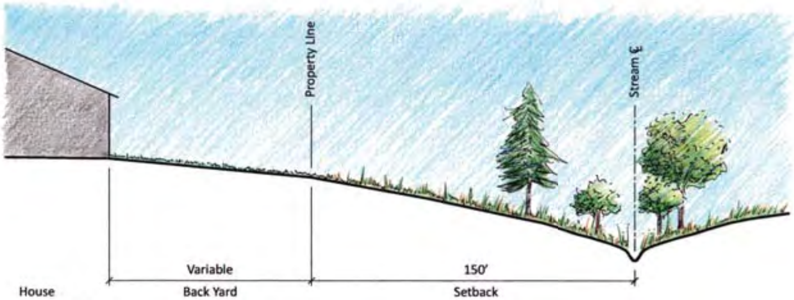


Fig 5-2 Typical Relationship Between Residential Lots and Stream Corridor

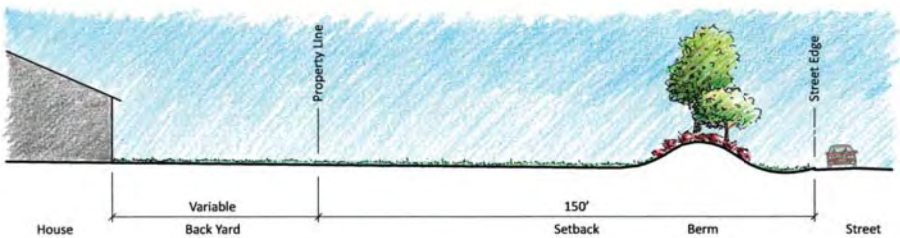


Fig 5-3 Typical Relationship Between Residential Lots and Adjacent Streets

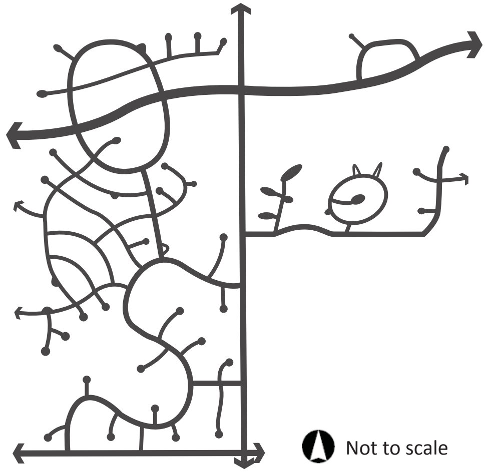


Fig 5-4 Street Network Diagram

Concept Development

Major Street Alignments

Determining the alignments of 167th Street and Quivira Road is the first crucial design decision because it influences the entire design process, from the location and size of open space along the stream corridors to the placement of the village core with its retail component. In fact, while the regulatory factors defined the minimum size of the open space along the stream corridors, it is the alignments of 167th Street and Quivira Road that will define the maximum extent of that space.

In the site inventory and analysis it was decided that the proposed alignment of 167th Street - at lease insofar as the point where it intersected the west property line of the project site - should be altered for a number of reasons. One certainty is that the street must cross the project site along some alignment in a general east-west direction. While the entire alignment of 167th Street is flexible, there are fewer options for Quivira Road because it is already in place and will simply be upgraded when the project proceeds. The intersection of 175th and Quivira and the point where Quivira Road intersects the north edge of the property must both be maintained. However, the alignment of the road within the project site is subject to change if it can be justified.

The conceptual diagrams in Figures 5-5 through 5-10 illustrate possible alignment combinations for 167th Street and Quivira Road. In each diagram the large yellow area denotes the village core while the smaller yellow areas denote other neighborhood centers. Various alignments were experimented with in an effort to optimize vehicular connectivity both within and beyond the project site, to maximize areas of contiguous open space within the site, and to situate the village core in a location where it can take advantage of relatively level terrain and relate well to the stream corridors.

The design in Figure 5-5 severs Quivira Road and connects it with 167th Street at two locations to create contiguous open space near the center of the site and to allow the location of the village core closer to the highest elevation point in the northwest quadrant of the site. The scheme was ultimately rejected because of concerns over the potential negative effects on local circulation. However, Figure 5-5 is useful with regard to the alignment of 167th Street in the northeast quadrant of the property, where it follows the section line until reaching the stream corridor, thus creating a larger amount of contiguous open space in that quadrant than the proposed alignment allows. (See Fig. 5-1 for comparison).

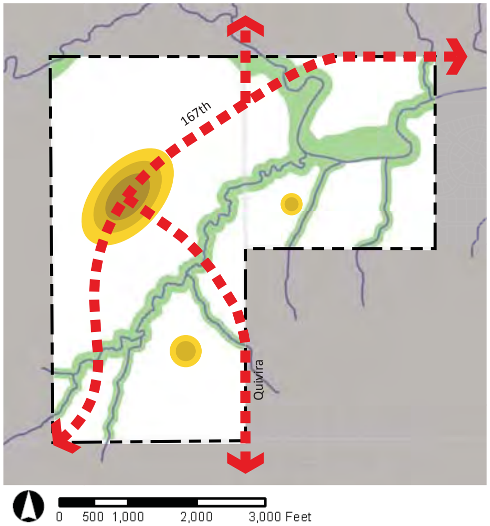


Fig. 5-5

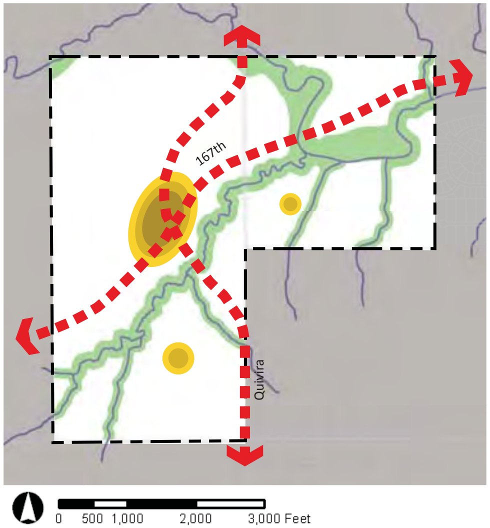


Fig. 5-6

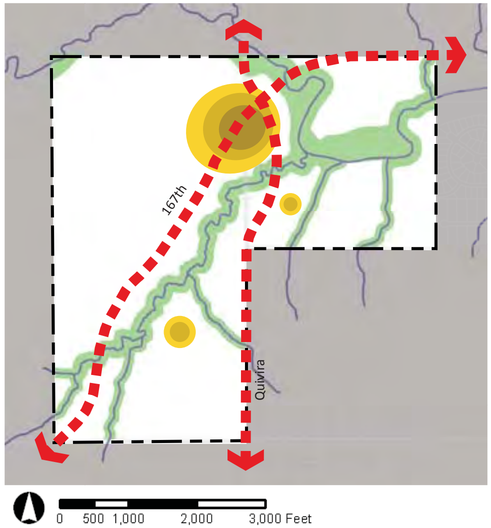


Fig. 5-7

While the total number of potential alignment combinations for 167th Street and Quivira Road is far too great to consider here, Figures 5-5 through 5-10 are a representative sample of the possible schemes. Increasing contiguous open space by curving Quivira Road result in a convoluted and excessively complex layout while generating few benefits. While Figures 5-6 through 5-8 suffer from having two major roads very close to each other because of their curved design, Figure 5-9 fails to create a connection to the western site boundary.

Figure 5-10 illustrates the general road alignment ultimately chosen for the design of the project. The alignment of Quivira Road remains unchanged for purposes of simplicity and because it serves the local and regional circulation pattern well in its current configuration. 167th Street enters the property from the east and follows the north section line until it reaches the stream corridor, at which point it curves south and west before crossing Coffee Creek very close to the point designated as the stream crossing in the proposed alignment. It then curves again to the south and west, following the stream corridor into the southwest quadrant of the site until crossing into the Chapel Hill subdivision to the west of the project site, where it connects with 173rd Street.

173rd Street was chosen as the point of connection over that of Figures 5-5, 5-7, and 5-8 for a number of reasons. First, Quivira Road already serves as a major connection through the site to 175th Street. Another connection, near the southwest corner of the property, is therefore not necessary. Second, a connection at the southwest corner could cause a traffic bottleneck where 175th and 179th Streets intersect. Third, a connection to 173rd Street provides access to both the Chapel Hill subdivision and Heritage Park for vehicular traffic from the east. Finally, the alignment contains one fewer stream crossing than a connection to the southwest corner of the site would, thus helping to preserve the site's natural systems

The road alignments illustrated in Figure 5-10 are not precise locations, but rather constitute a conceptual exercise intended to provide guidance for the next step in the design process, an exploration of preliminary schemes for the entire project site, with different options for the precise road alignment of 167th Street.

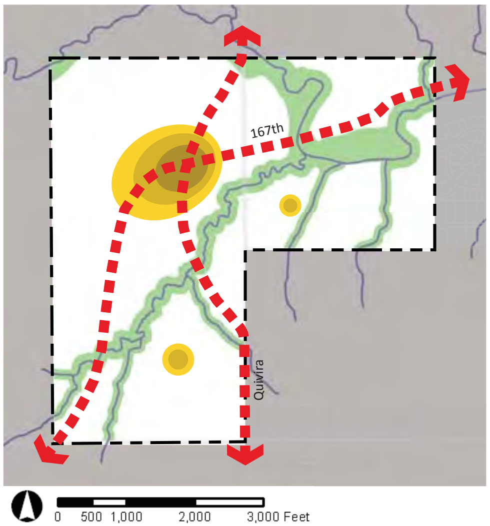


Fig. 5-8

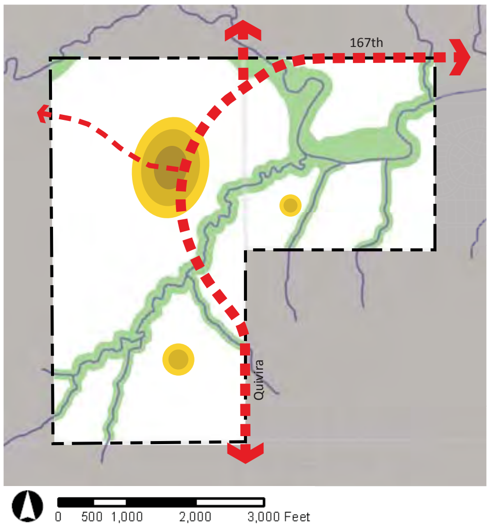


Fig. 5-9

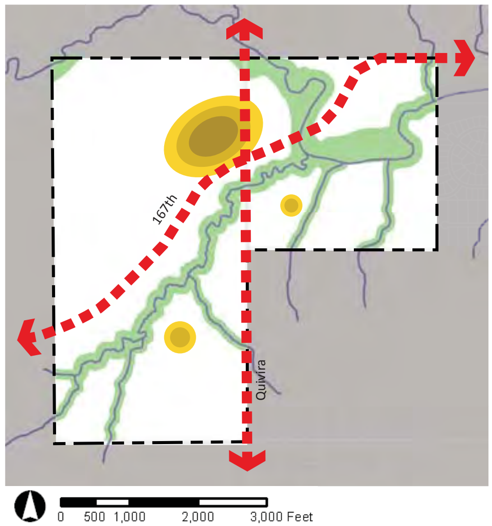


Fig. 5-10

Preliminary Design Development

The purpose of the preliminary design process is to consider options for the precise alignment of 167th Street and to explore how the general form of the project can be designed to respond most effectively to that alignment in light of the project's goals, objectives, and philosophy. At this stage, the intention is to present approximate sizes and shapes of streets and blocks, denote alley alignments, and convey a general sense of neighborhood character and intensity of use, not to create final design dimensions or specify precise land uses.

A conventional land use plan that associates different colors with particular land uses, such as those employed in Figure 5-1, is inappropriate for this stage in the design process because it reinforces the idea that land uses should be separated from one another and because the intention here is to focus on density and intensity of use. Instead, the design of the master plan begins with a regulating plan, which applies the same concepts for categorizing land uses as the urban-rural transect illustrated and discussed on pages 98 and 104-105. The regulating plans categorizes components of the design by density and intensity of use rather than pure land use. (Figs. 5-11 and 5-13). Complementing the regulating plans are the open and civic space plans, which define in general terms the locations and sizes of open space and civic uses. (Figs. 5-12 and 5-14).

Corresponding with the urban core zone (T6), the village core has "the most intense urban character and the greatest density." Net residential densities can span a wide range, from fifteen to more than a hundred units per acre.

The neighborhood center corresponds with the urban center zone (T5). It resembles the village core in most respects, but while it retains a distinctive urban character, it features lower

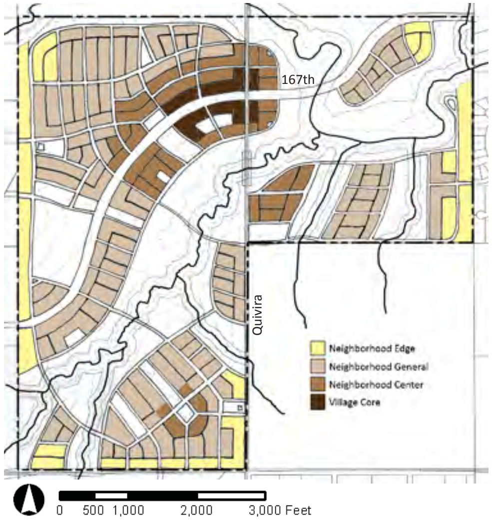


Fig. 5-11 Concept 1 Regulating Plan

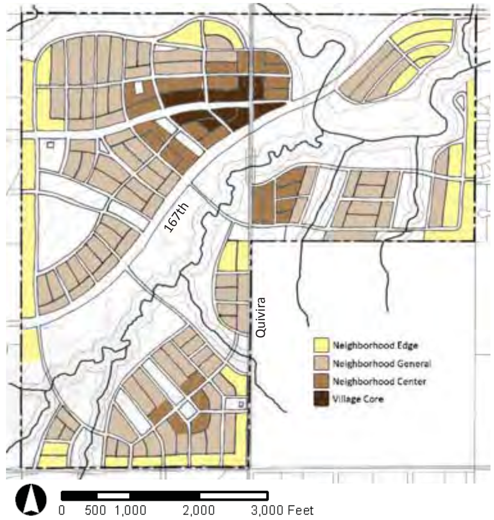


Fig. 5-13 Concept 2 Regulating Plan

Fig. 5-12 Concept 1 Open Space and Civic Space Plan

Fig. 5-14 Concept 2 Open Space and Civic Space Plan

intensity of use and its tallest buildings have fewer floors. Residential densities often occupy the same range as those of the village core.

Occupying by far the most space of the four regulating categories, the neighborhood general corresponds with the general urban zone (T4). Although it is primarily residential, it retains a distinct urban character. Net residential densities typically range from six to twenty units per acre.

Finally, the neighborhood edge corresponds with the sub-urban zone (T3). Despite its name, it does not simply replicate conventional suburban design patterns, but rather serves as a transitional space between the more urban heart of the project and the suburban developments that dominate the local landscape. Net residential densities typically range from two to eight units per acre.

Deciding which concept best achieves the project's goals and objectives requires an extensive examination of several prominent design features of each plan. Because the primary difference between the two concepts is the alignment of 167th Street, the factors considered at this stage in the process stem from the design responses to the different alignments.

The alignment of 167th Street in Concept 1 is such that, in the western half-section of the project site, it creates sufficient space south of the roadway and north of the stream corridor for buildings and streets. As a result, 167th Street in that part of the project is lined with buildings on both sides of the roadway, ranging from neighborhood edge at the east and west ends of the street to village core at the street's intersection with Quivira Road.

By running 167th Street through the neighborhoods rather than along their edges, Concept 1 fully integrates the street into the neighborhood structure. 167th Street still serves as a thoroughfare that provides local and regional connections, but it also provides a prominent means of internal movement. Connectivity within the site is enhanced because 167th Street is readily accessible by residents living on either side of it.

The alignment in Concept 1 allows 167th Street itself to serve as the corridor for the village core and creates opportunities for elements of the village core to be located on both the north and south sides of 167th Street.

However, situating the village core on its own street as in Concept 2 creates an opportunity for a more direct connection to the Chapel Hill subdivision located to the west of the project site. (See, Fig. 2-106). It also integrates the village core more fully into the neighborhood structure, maximizing the idea that the core can serve as a center of activity. That role is aided by the fact that more homes in Concept 2 are located on the same side of 167th Street as the village core, making it necessary for fewer people to cross that street to reach the village core.

Aligning 167th Street to allow the placement of streets and buildings between the street and the stream corridor necessitates situating much of the development south of 167th Street close to the stream setback boundary. Such an arrangement limits the amount of space available for trails, parks, off-channel wetlands, stormwater infiltration basins, or bioretention features and makes it difficult to minimize environmental disturbances.

With development occurring only on the north side of the street in Concept 2, more space is available between the street and the roadway for trails, parks, off-channel wetlands, stormwater infiltration basins, or bioretention features. However, it is not practical to place any buildings south of 167th Street between Quivira Road and the west property line because doing so would effectively privatize the stream corridor by lining it with the backyards of any homes placed there. (See, Figs. 5-17 and 5-18).

The plan in Concept 1 has the effect of isolating much of the stream corridor because of the homes situated between 167th Street and the stream. It is conceivable that a driver on 167th Street could pass through the entire project site without being aware of the open space and stream system located in the western half-section of the site because the homes south of the roadway block views into the stream corridor.

In either concept, most residents in the northwest portion of the site must cross 167th Street to access the stream corridor located south of the street. Concept 1 therefore does not seem to command a significant advantage in terms of its connectivity to nature simply by virtue of the fact that it includes residential development between 167th Street and the stream corridor. The fact that Concept 2 allows the inclusion of significantly more public open space between 167th Street and the stream corridor actually creates more opportunities for interaction with the site's natural systems.

Both concept plans reserve sufficient civic space in the western portion of the site for the inclusion of an elementary school. Ideally the master plan should create safe and comfortable routes to the school for pedestrians and bicyclists to achieve the goal of reducing people's reliance on motor vehicles. Concept 2 creates such conditions for the greatest number of residents in the project site because fewer children would need to cross 167th Street to reach the school. Furthermore, the school in Concept 1 is located directly on 167th Street while in Concept 2 it is nestled into the adjacent neighborhood. The latter arrangement is more desirable because it is farther removed from traffic.

One of the most significant differences between the two design concepts is that in Concept 1 the village core is located directly on 167th Street while in Concept 2 it is located slightly north of 167th Street in an arrangement that resembles a traditional downtown "main street." Figures 5-15 and 5-16 illustrate the differences in street design for the mixed-use corridor in each concept. In Concept 1 the distance a pedestrian must traverse to walk from one side of the street to the other is 80 feet because the street design must include two lanes of travel in each direction and because of the inclusion of a vegetated median to create a boulevard. In Concept 2 the distance is only 46 feet, thus creating more of a feeling of enclosure.

There are also major differences between Concepts 1 and 2 in terms of the design of the residential portion of 167th Street. (See, Figs. 5-17 and 5-18). While the street is lined on both sides by residences in Concept 1, those residences are separated by the same 80 feet present in the mixed-use corridor. As a result, any perception of connectivity between homes that might be intended by placing them across from one another is largely lost. The street width also has a negative impact on the ability of the architecture to create a sense of enclosure or a "street wall."

In *Great Streets*, Allan Jacobs points out that "trees alone" can define space along a street and slow traffic in the absence of architecture that is up to the task. (Jacobs 1993, 106). By including rows of trees in front of the homes and in the median, Concept 1 does still create a sense of enclosure even if the architecture itself is not up to the task. (See, Fig. 5-18).

In Concept 2, houses line only the north side of 167th Street. However, a sense of enclosure still

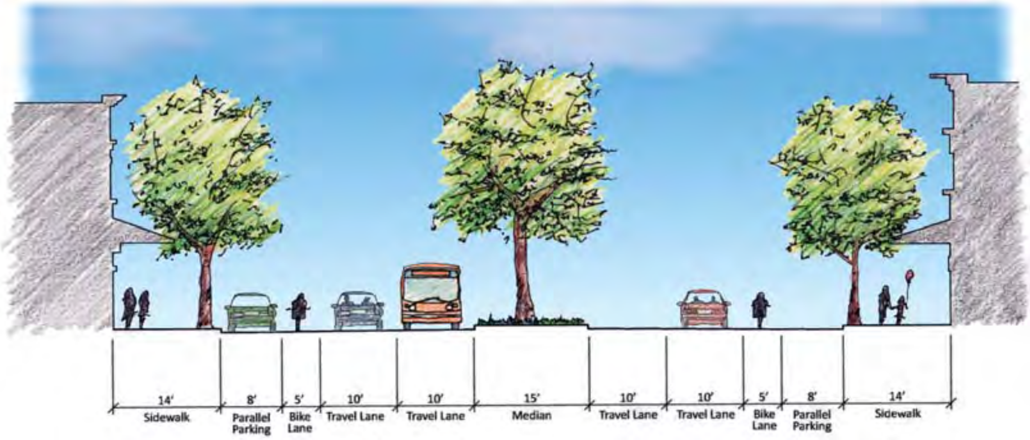


Fig. 5-15 Concept 1 Mixed-Use Corridor

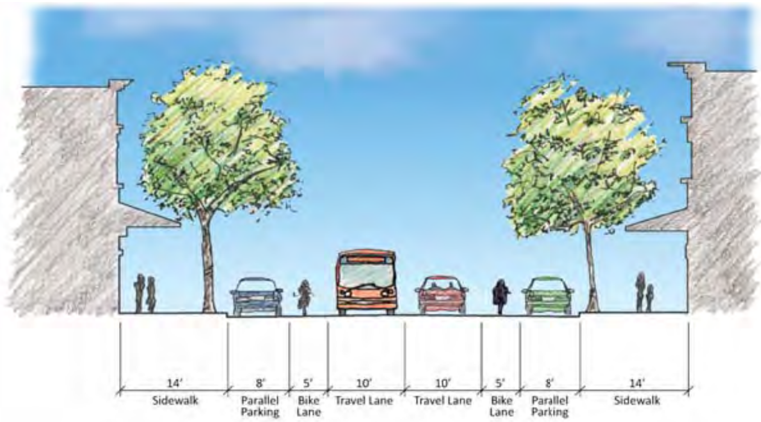


Fig. 5-16 Concept 2 Mixed-Use Corridor

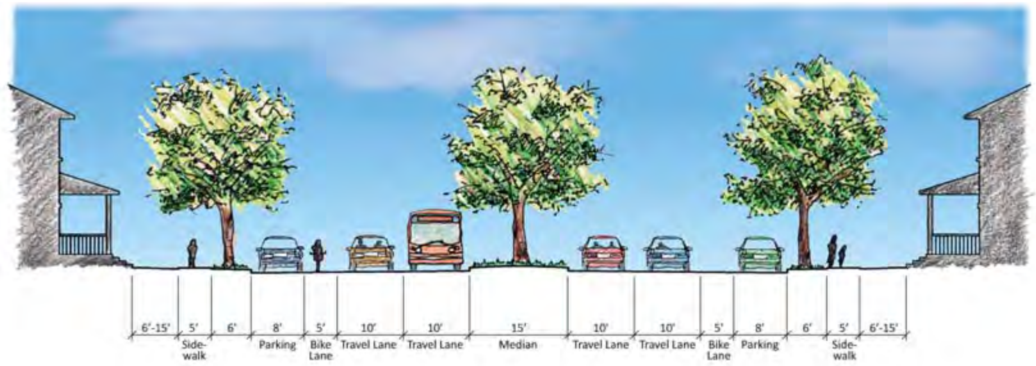


Fig. 5-17 Concept 1 Residential Portion of 167th Street

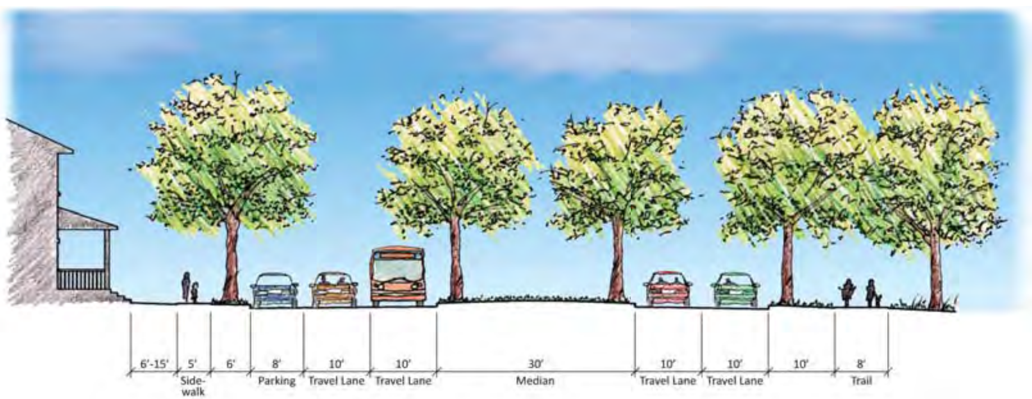


Fig. 5-18 Concept 2 Residential Portion of 167th Street

exists because, like Concept 1, rows of trees are situated in front of the homes and in the median. The addition of a double row of trees on the south side of the street enhances that effect and also creates a pleasant and inviting environment for the trail running parallel to the street opposite the homes. (See, Fig. 5-18).

Concept 2 was ultimately selected for further development as the final master plan because it achieves the project's goals and objectives more thoroughly than Concept 1 in a number of ways: (1) Eliminating residences south of 167th Street creates conditions that foster a sense of community by maintaining closer spatial relationships between residences and maximizing physical connections within the site. (2) Locating the village core on a secondary street provides an opportunity for better integration with adjacent land uses and creates a center of activity rather than a more conventional retail strip; (3) The creation of a greater amount of public open space increases opportunities to reconnect people with nature (4) Making both the village core and the elementary school more accessible to pedestrians and bicyclists reduces people's reliance on motor vehicles; (5) Making the open space south of 167th Street more visible from the street and creating a distinct departure from the local pattern of situating retail uses directly on major thoroughfares without integrating them into the neighborhood structure both provide a positive model for future growth in the Kansas City metro area.

Final Design

Overview

The master plan for the project represents a significant departure from prevailing design patterns in Johnson County. (Fig. 5-19). Natural systems – the stream corridors and drainage channels that wind through the site – provide the framework for the entire design, shaping the neighborhood structure, blocks, streets, and other spaces that comprise the project. The primary components of the design are 188 acres of public open space, 16 acres of civic uses, and 1648 residential units of various types.

The 188 acres of open space represents 39% of the project site, most of it adjacent to stream corridors. (See, Fig. 5-20). All open space is bordered by streets, avoiding the "privatization" of stream corridors that is prevalent in many projects, where residential lots often border streams and other open spaces. In no case is access to open space inhibited by adjacency to private property, creating extensive opportunities for interacting with nature. A trail system through the stream corridors provides a safe and convenient means of pedestrian and bicycle circulation throughout much of the site and connects with the MetroGreen trail system for the wider region.

An extensive network of streets stands in stark contrast to prevailing development patterns in the region. Rather than a conventional hierarchy of local, collector, and arterial streets with highly restricted options for choosing one's route, the street network maximizes connectivity by providing multiple possible routes of travel to any given point within the site, making the entire project more permeable for vehicular, pedestrian, and bicycle circulation alike.

The street network also contributes to a sense of community by creating more opportunities for exploring the neighborhoods and interacting with

Fig. 5-19 Illustrative Master Plan

Fig. 5-20 Open Space and Civic Space Plan

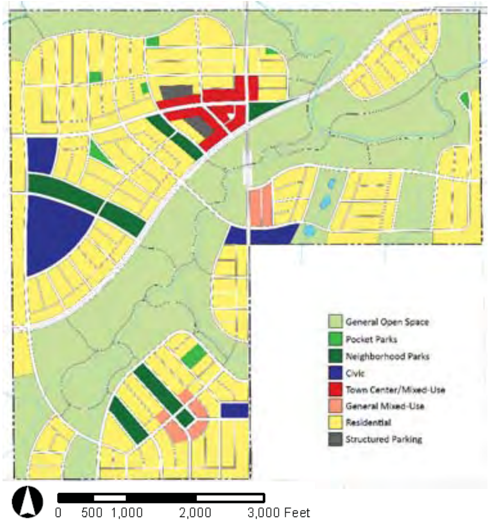


Fig. 5-21 Land Use Plan

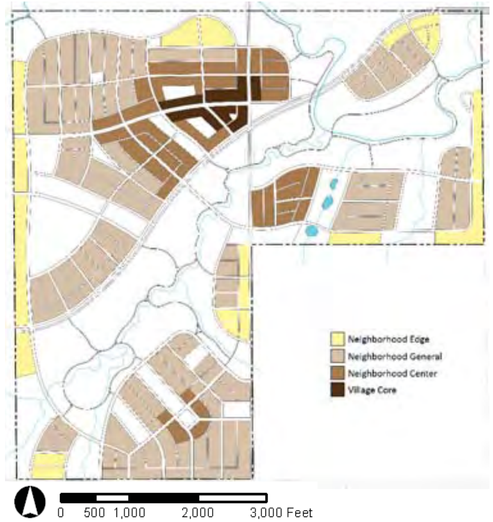


Fig. 5-22 Regulating Plan

residents and visitors. This is especially true because of the relatively small block sizes – typically ranging from 300 to 500 feet in length – which are much more conducive to pedestrian movement than longer blocks found in conventional subdivisions.

The inclusion of a mixed-use village core near the intersection of 167th Street and Quivira Roads also sets the project apart from prevailing development patterns in Johnson County, which emphasize a strict separation of uses and are designed primarily to handle high volumes of vehicular traffic. The village core, with its 120,000 square feet of retail and commercial space and 200 condominium and apartment units, creates a center of activity for both the project site and southern Johnson County and reduces nearby residents' reliance on motor vehicles. (See, Figs. 5-21 and 5-22).

Civic spaces integrated into the design help create a sense of community and also provide activities for people living within many miles of the project site. (See, Figs. 5-20 and 5-21). Of the 16 acres set aside for civic uses, ten acres supports an elementary school and public pool, while the other six acres is divided among four smaller parcels for places of worship, a community center, a post office, or other such uses.

The regulating plan in Figure 5-22 illustrates the levels of activity and intensities of use in the same way that Figures 5-11 and 5-13 did during the design development phase. The village core occupies the smallest area but represents the highest intensity of use and density. Its 200 condominiums and apartments create an average net density of 21 residential units per acre.

Neighborhood centers serve as a transition zone around the village core but also as independent centers of activity for the two other neighborhoods in the project. (See, Figs. 5-22 and 5-23). Live-work units and townhomes are the primary components of neighborhood centers, with some small-scale retail, dining, or entertainment possible as well. With 608 residential units, the average net density is 10.4 units per acre.

Representing the largest component of the design in terms of area, the neighborhood general is characterized primarily by detached single-family homes on relatively small lots, with short street and adjacent lot setbacks, two- and even some three-story homes, and alley-loaded garages located behind the homes. With 720 homes, the average net density is 7.2 residential units per acre.

The neighborhood edge serves as a transition zone between the project's neighborhoods and the conventional suburban design patterns that lie beyond the site. Its larger lots, longer setbacks, larger homes, and frequent use of street-served driveways rather than alleys results in the lowest density and intensity of use for the project. With 120 homes, the average net density in the neighborhood edge is 4.6 units per acre.

The overview paints a general picture of the design and sets forth the broad design elements intended to address the goals and objectives. The remainder of the Design chapter focuses on the major components of the design and the specific design solutions that address the concepts and problems identified on page 11.

Structure and Layout

The first consideration for locating each of the three neighborhood centers was an attempt to create one neighborhood in each quarter-section of the site, with each neighborhood defined by a quarter-mile radius around the center. (Fig. 5-23). Although ideally the center of the neighborhoods would correspond with the centers of the quarter-sections, such an arrangement is not possible because of limitations creates by topography and the paths of the stream corridors. The second consideration takes into account the locations of major street thoroughfares and is important because of opportunities to relate at least some of the neighborhoods to those streets.

The neighborhood center in the northwest quarter-section also serves as the village core and is closely related to the intersection of 167th Street and Quivira Road. Because of the "main street" arrangement of the village center, it is organized in a linear fashion as opposed to having a precise center point.

The neighborhood center for the northeast quarter-section relates to Quivira Road and is close to the edge of the quarter-section because placing it closer to the geographic center would create an awkward relationship to the stream corridors. As a result, there is substantial overlap between the two neighborhood centers in the northern half-section.

The neighborhood center for the southwest quarter-section, while still not perfectly centered geographically because of the stream corridor, is a more traditional arrangement, with a defined center point. Unlike the other two neighborhood centers, it is independent of the major thoroughfares adjacent to and running through the site.

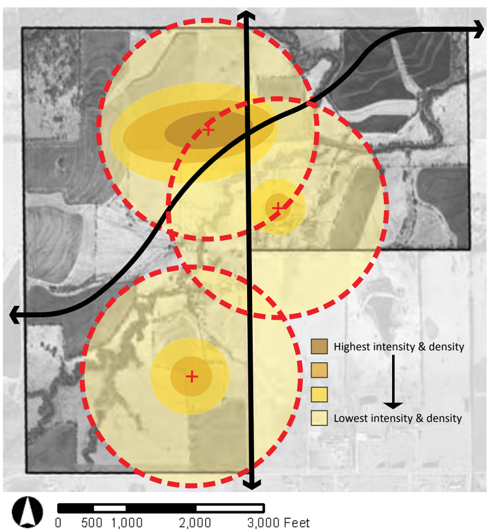


Fig. 5-23 Neighborhood Diagram

Street Network

Figure 5-24 illustrates the different categories of streets for the project. 167th Street is designed as a multi-lane boulevard in the fashion of examples such as The Esplanade in Chico, California, Euclid Avenue in Chino, California, and Monument Avenue in Richmond, Virginia. (See, pp. 70-74). A 30-foot-wide median separates two lanes of travel in each direction. All portions of 167th Street that are fronted by buildings also have on-street parallel parking for convenience and to provide a buffer between traffic and pedestrians using the sidewalk. Bike lanes are not included in the design of 167th Street because a trail running parallel to the street and connected to the project's extensive trail network provides a safer alternative. (Figs. 5-25 and 5-26; See, Fig. 5-18 for section view)

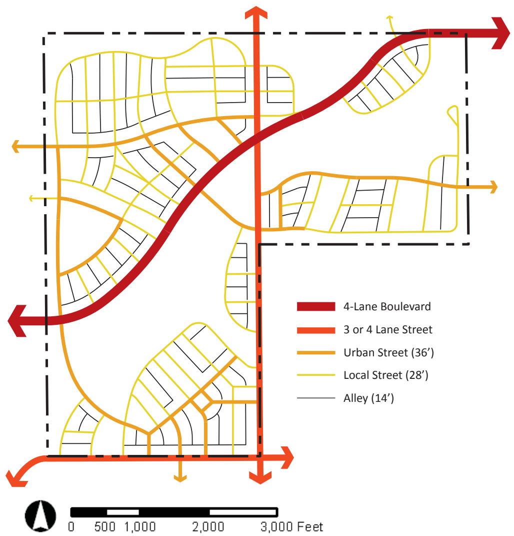


Fig. 5-24 Street Type Diagram

Quivira Road has two undivided lanes of travel in each direction and also has on-street parallel parking on all sections of the street that are fronted by buildings. Bike lanes are not part of the design for Quivira Road because the street is not expected to be used frequently as a route for bicyclists, particularly because the planned design of Quivira Road beyond the boundaries of the site is not conducive to bicycle use.

The alignments for 167th Street and Quivira Road and the locations of the neighborhood centers strongly influenced the layout and design of the overall street network for the project. Vehicular circulation to each neighborhood center is facilitated by urban streets with a width of 36 feet, capable of handling two free-flowing lanes of traffic and parallel parking on both sides of the street. (Fig. 5-27).

Farther away from the neighborhood centers, narrower local streets with a width of just 28 feet, make up the majority of streets in the project and are the norm in purely residential areas. (Fig. 5-28). These narrow streets are often referred to as yield streets because when two vehicles traveling opposite directions approach each other, one vehicle must often pull to the side to allow the other vehicle to pass, depending on the number of vehicles parked on the street. (Stueteville 2003).

While the idea of yield streets may seem counterintuitive, the fact is that vehicular circulation is more convenient and efficient than in conventional subdivisions because there are more streets and more intersections, maximizing the number of routes to and from a given location and reducing the number of vehicles on any given street. For example, while the conventional plan

Fig. 5-25 Street-level perspective of 167th Street

Fig. 5-26 Location Map

illustrated in Figure 5-1 has just 55 intersections (nearly half of which lead to cul-de-sacs), the master plan for the project calls for 113 intersections.

Looking at the street and block design for the project, one might be compelled to ask why the street network contains so many curves and why the overall shapes are irregular. After all, one of the criticisms of conventional subdivision design is the seemingly random curving of the streets. In this case, the topography strongly influenced the configuration of the blocks and thus the pattern of streets to serve them.

The site inventory and analysis identified certain portions of the site where it is prudent to run the streets perpendicular to contour lines to minimize the amount of earthwork operations and to maintain important spatial relationships between buildings that face each other across alleys or streets. (See, p. 61). Although uneven slope directions at the site made it impossible to conform every street perfectly to the topography, a deliberate effort was made to align streets perpendicular to slopes of 5% or higher. (See, Fig. 5-29).

The Communications Hill project in particular was instructive in solving the challenges posed by the topography and served as an excellent model for designing the street and block structure of the master plan. (See, pp. 62-64). The result can be seen in Figure 5-30, which illustrates the spatial relationships between buildings even on slopes of 5% or more. That strategy allowed the implementation of a street network based on a modified grid that follows the existing topography as much as practical while following traditional design standards for vehicular circulation.

Overall, the layout of the project and the design of the street system contribute to the

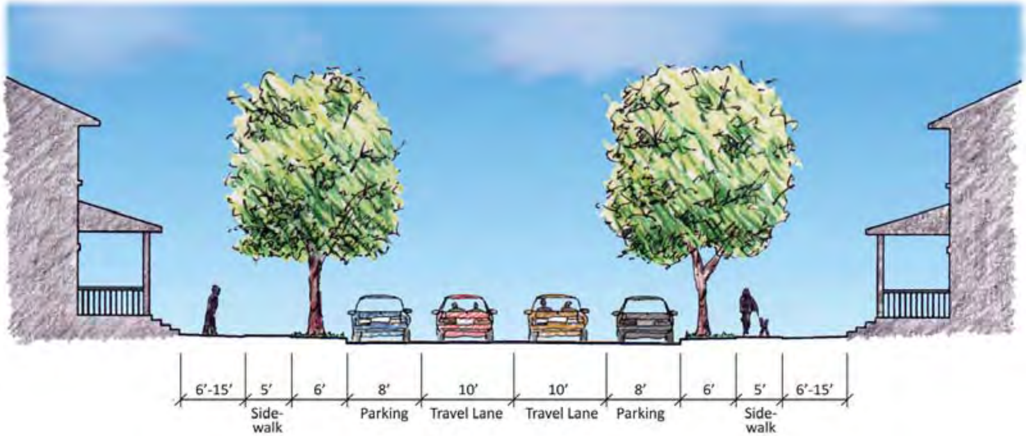


Fig. 5-27 Section View of Urban Street

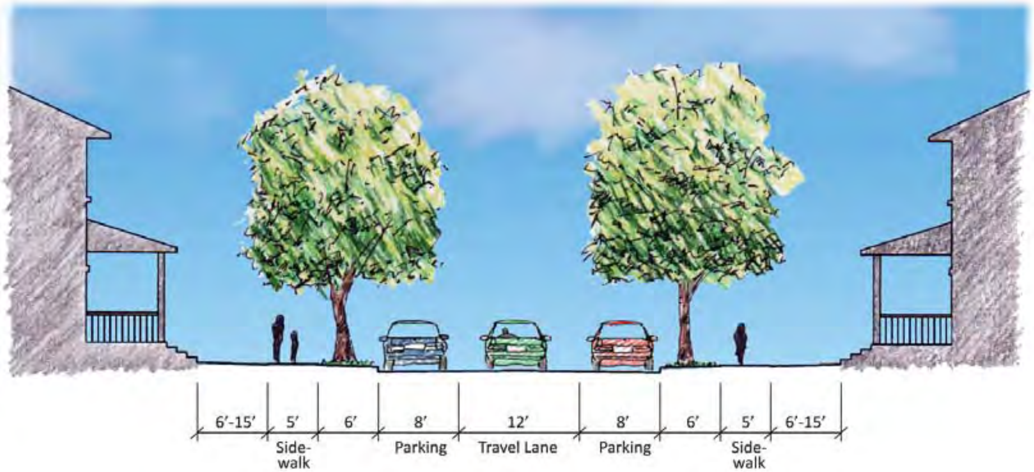
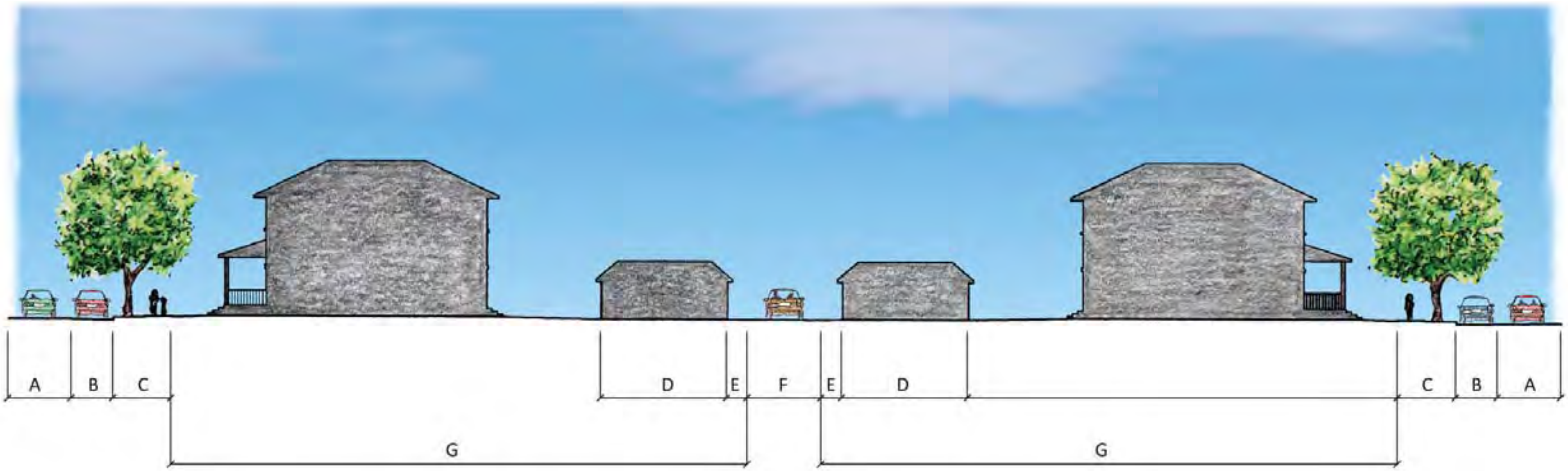


Fig. 5-28 Section View of Local Street

Fig. 5-29 Slope and Street Diagram
(Adapted from DASC 2008)

achievement of creating conditions that foster a sense of community, creating physical connections throughout the project, and reducing people's reliance on motor vehicles by using narrow streets to slow traffic and reduce pedestrian crossing distances, creating small, walkable blocks, and creating a myriad of choices for determining one's route of travel.

The project layout and street design also minimize environmental disturbances by following the topography and utilizing existing drainage channels as much as practical. To that end, four major existing drainage channels in the western half-section of the site have been preserved and integrated with the neighborhood fabric to take advantage of the natural drainage provided by the topography. (See, Fig. 5-29).



A 12’ Travel lane (local/yield street)
B 8’ Parking
C 10’-30’ Front setback
D 24’ Garage depth (maximum)
E 4-6’ Rear setback
F 12’-14’ Alley
G 100’-130’ Lot depth

Fig. 5-30 Section View of Neighborhood General Block

Open Spaces

A first-time visitor to the project cannot help but notice the open spaces that punctuate the site in a variety of shapes, sizes, and characteristics. This is not another subdivision with a stormwater retention basin surrounded by mown fescue and passed off as a park. Open space is deliberate and thoughtful. It is an integral part of the design, every bit as important as the streets and homes.

By far the greatest amount of open space in the design is represented by stream corridors. Rather than pushing development right up to the stream setback boundaries discussed in the inventory and analysis, a substantial amount of land beyond the boundaries is set aside for open space in the master plan, greatly increasing the amount of open space compared to that required by regulation.

Land adjacent to the stream corridors is characterized by gentle slopes and unprogrammed open space that is largely natural in character. Existing agricultural land is replaced with natural grassland that once characterized the landscape at the site. Where appropriate, recreational equipment has been placed adjacent to the trails.

The stream corridors are also the location of a series of stormwater infiltration basins, off-channel wetlands, and bioretention facilities designed to intercept stormwater runoff and allow it to partially infiltrate into the soil rather than simply rushing directly into the stream channels. (Fig. 5-31). In several instances the stormwater systems tie in with existing drainage channels that have been integrated into the neighborhood as vegetated corridors with swales that double as neighborhood parks because of the extensive amount of open space they offer. Figs. 5-29 and 5-31).

An integral part of the open space adjacent to the stream corridors is a network of trails that connects

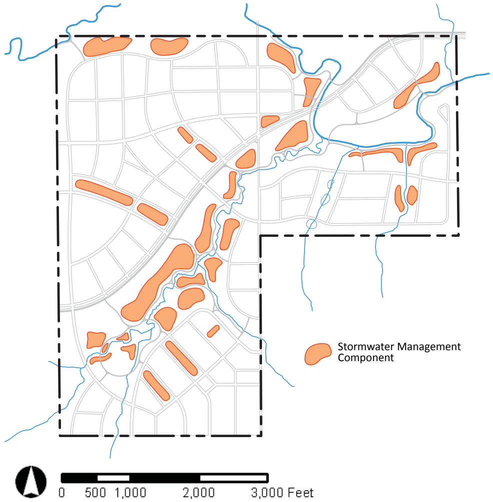


Fig. 5-31 Conceptual Stormwater Systems Diagram

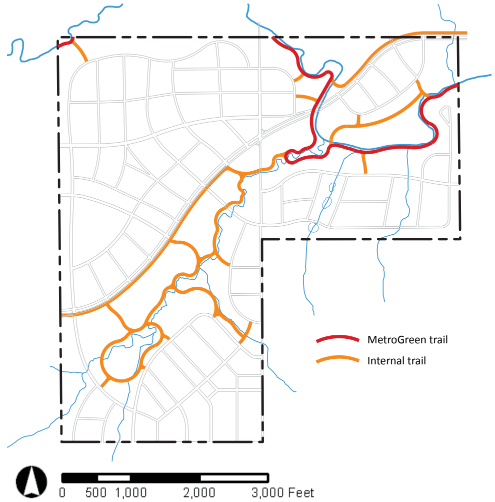
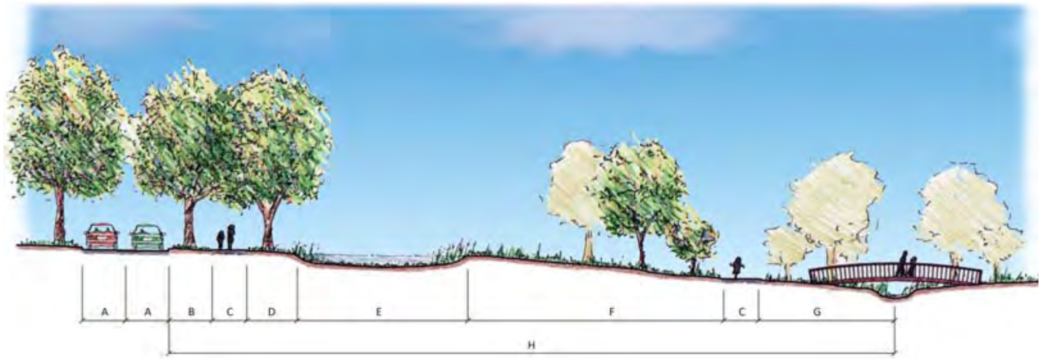


Fig. 5-32 Trail Diagram



A	10’ Travel lane	B	10’ Vegetated buffer
C	8’ Trail	D	Varies
E	Stormwater facility (size and type vary)	F	Varies
G	Varies	H	100’-550’ Stream setback

Fig. 5-33 Section view of stream corridor

to the planned expansion of the MetroGreen trail system. (Fig. 5-32). In all, approximately 4.1 miles of trails are planned for the development. Trails will be eight feet wide and paved. They are intended for use by both pedestrians and bicyclists. Rather than including bike lanes in the design of 167th Street, the trail system doubles as the sidewalk on the south side of the street west of Quivira and on the north side of the street east of Quivira.

Figure 5-33 illustrates the spatial relationships among the various components located in the stream corridors. Figure 5-35 illustrates a prototypical scene within the stream corridor. (See also, Fig. 5-34).

In addition to the general open spaces, the design includes several in-tract open spaces that fall into two categories: Pocket parks and neighborhood parks. (See, Fig. 5-21 for locations).

Intended to serve users within walking distance, pocket parks contain a variety of programming components and are generally intended to serve the needs of all age groups. Pocket parks range in size from approximately .1 to 1 acre and are typically integrated into residential blocks.

Neighborhood parks range in size from .5 to 3 acres in size and are intended to draw users from a wider area than pocket parks. The preserved drainage channels serve as neighborhood parks because the channels themselves occupy only a narrow portion of the land set aside and because water is present only during and shortly after rainfall occurs. (See, Fig. 5-21 for locations).


Fig. 5-34 Location Map


Fig. 5-35 Eye-level perspective of open space adjacent to stream corridor

Village Core

The village core is intended to serve not only residents of the project but also people who live in surrounding developments and beyond. Its location close to the intersection of 167th Street and Quivira Road allows it to capture regional and local traffic, while its integration into the neighborhood structure on a secondary street creates a more intimate and enclosed environment more conducive to pedestrian traffic.

Through the use of design elements such as wide sidewalks, on-street parking, bicycle lanes, narrow traffic lanes, bulb-outs at intersections, and street trees, the primary focus of the village core is accommodating the needs of the people it is intended to serve, not their motor vehicles. Figure 5-36 illustrates the design of the village core. (See, Fig. 5-16 for section view; See also, Fig. 5-37).

Fig. 5-36 Street-level perspective of village core

Fig. 5-37 Location Map

Neighborhood Center

Neighborhood centers are characterized by higher densities than the neighborhood general areas adjacent to them. They are comprised mainly of townhomes and other multi-family housing. Although not intended to serve as local or regional draws like the village core, they serve as centers of activity for their respective neighborhoods by virtue of the relatively higher concentrations of people living there compared to less densely populated portions of the project.

The three neighborhood centers in the project each have their own character flowing from their context. In the northwest quarter-section the neighborhood center serves primarily as a transition zone between the neighborhood general and the village core and has the most urban feel of the three. In the northeast quarter-section the neighborhood center relates to Quivira Road on its western edge and the stream corridor to the east.

The neighborhood center in the southwest quarter-section is unique in that it is organized around a town square and is surrounded by several blocks of neighborhood general development. Its location in the interior of the neighborhood structure and away from the major nearby thoroughfares also sets it apart, giving it a unique sense of place. In addition to townhomes and live-work units, it is an ideal location for small-scale dining, entertainment, or retail uses, particularly locally-owned businesses. (Figs. 5-38 and 5-39).

Figure 5-39 also illustrates part of an existing drainage channel that the design preserves and integrates into the master plan. It is located just northwest of the town square, making its open space easily accessible.

Fig. 5-38 Location Map

Fig. 5-39 Aerial perspective of southwest neighborhood center with associated open space

Neighborhood General

More people's homes will be located in the neighborhood general zone than in any other single category of the regulating plan. The village core and neighborhood centers may be where most activity is expected to occur, but without residents of the neighborhood general there would be too few people to activate those places and make them lively.

The neighborhood general is likely to be where most families with children in the project site live because it is composed almost entirely of detached single-family homes. It is also the place that evokes an image of tree-lined streets fronted by small and medium sized homes, with families out for a stroll or bicycling together. Lower traffic volumes and speeds and lower residential densities make bicycle lanes unnecessary for the most part because potential conflicts between drivers and bicyclists are less likely than in denser areas with greater numbers of people and traffic.

Rather than widely spaced houses isolated on islands of unused private yards found in conventional subdivisions, the homes here sit in close proximity to each other. Short building setbacks on all sides of the lots complement and enhance the street design, encouraging serendipitous encounters among neighbors and fostering a strong sense of community. The neighborhood general maintains a strong sense of place even without the distinct urban look and feel of the village core and neighborhood center. (Figs. 5-40 and 5-41).

Fig. 5-40 Street-level perspective of neighborhood general scene

Fig. 5-41 Location Map

Neighborhood Edge

Far from being simply the land left over after designing the other components of the regulating plan, the neighborhood edge serves a distinct role in its own right. As the interface between the project site and adjacent land uses, it is what many people will first see when they enter the project site. (Figs. 5-42 and 5-43).

Residential subdivisions that share property lines with the project will reflect a conventional subdivision design pattern with large lots and prominent front-loaded garages with driveways. The neighborhood edge performs an important role of providing a short but definite transition zone from that environment to the distinctly higher densities and overall different appearance of the project.

Homes in the neighborhood edge are all detached single-family and occupy the largest lots in the project. Very few are served by alleys. However, that does not mean they simply replicate their conventional cousins. Instead, great care is taken to ensure that the impact driveways and garages have on aesthetics and walkability is minimized. Placing garages behind homes as much as possible and using single-lane driveways are important tools for making homes in the neighborhood edge as compatible with the project's goals and objectives as possible. Building setbacks, while sometimes longer than in any other part of the project, are still substantially shorter than in conventional subdivisions. A first-time visitor to the site, when confronted by the neighborhood edge, will have no doubt he or she is in a different place before even reaching the neighborhood general.

Fig. 5-42 Location Map

Fig. 5-43 Street-level perspective of neighborhood edge

Civic Space

Because the project is intended as a community that serves the needs of residents and visitors alike, civic functions are an integral component of the design. The largest civic space is the 10-acre plot of land close to the west property boundary with an elementary school and public pool. (Fig. 5-44). The two uses complement each other well because, when the school is open the pool is closed, and vice versa. Parking can be shared by the two facilities for the same reason, thus reducing the amount of land that must be devoted to surface parking. (See, Fig. 5-20).

Just north of the site for the combined school and pool, at the topographic high point, is the ideal location for a facility such as a church, which can exploit its prominent location with a steeple that serves as a landmark for the entire project. (Fig. 5-45). At the same time, a church in that location would still be integrated into the fabric of the neighborhood to reinforce the sense of cohesiveness that the entire project aims to achieve.

Three other spaces for civic uses are also designated in the master plan, two of which could Potential uses include a post office, a community center, or a gym. (Fig. 5-46). The barn on the east side of Quivira also provides an opportunity for a themed civic use that preserves some of the site's history. (Fig. 5-47).

Fig. 5-44 Location of school and pool

Fig. 5-45 Location of church

Fig. 5-46 Location of various civic uses

Fig. 5-47 Location of barn

Design Summary

Response to Goals and Objectives

The project goals and objectives drove the entire design process by establishing the criteria against which all decisions were evaluated. Precedent studies, the inventory and analysis, programming, and the design process were all undertaken with an eye toward the goals and objectives to ensure that the overall purpose of the project was executed. Likewise, if an idea failed to address the goals and objectives, it was likely outside the scope of the project. The purpose of this reflection is to identify how the design addresses each of the six goals and eight objectives identified on page 11.

<u>Goal 1: Create conditions that foster a sense of community</u>

Objective 1a: Maintain close spatial relationships between buildings and between buildings and pedestrian path
Throughout the design, buildings with short setbacks in relation to the sidewalk and street create an architectural edge to streets that defines space and paths of travel. Alleys serve nearly all buildings, allowing minimal spacing between buildings because garages are located behind or under homes rather than beside them. The resulting narrow lots reinforce the architectural edge of the streets, place neighbors in closer proximity to each other, and increase density. The overall design of blocks and streets maximizes opportunities for unplanned encounters among residents and visitors alike.

Objective 1b: Create physical connections throughout the project site
By replacing the conventional approach to street design that limits routes of travel and deters freedom of movement through the use of cul-de-sacs, the master plan includes a dense network of streets, all lined with sidewalks, that creates nearly endless possible combinations of travel throughout the site. Trails through open spaces add to opportunities for circulation throughout the site for pedestrians and bicyclists, while bicycle lanes on select streets add to the circulation options for bicyclists.

<u>Goal 2: Create center of activity for southern Overland Park</u>

Objective 2a: Integrate project with adjacent land uses
Integration with adjacent land uses is achieved through two means: (1) Connecting to adjacent streets at every available opportunity; and (2) Connecting to the MetroGreen trail system and the open space that follows Coffee Creek beyond the project site. With regard to streets, it was also important to ensure that 167th Street and Quivira Road are designed such that they will facilitate regional and local through traffic as intended in the original alignment plans.

Objective 2b: Provide activities for residents of site and visitors
The village core component of the design provides a variety of activities, including shopping, dining, and entertainment. Civic uses throughout the site add to the kinds of activities likely to occur on the site. Employment opportunities created by all those functions will allow some residents to work in the same neighborhood where they live and also attract non-residents to the site on a regular basis. Finally, the public open spaces, parks, and trails create opportunities for outdoor recreation.

<u>Goal 3: Reconnect people with nature</u>

Objective 3: Set aside public open space
With 188 acres of open space, most of it represented by general open space along the stream corridors, ample opportunities exist for residents and visitors alike to reconnect with nature in a way that no other neighborhood in the region can offer. Every residence in the design is within walking distance of the stream corridors and the system of trails within them.

<u>Goal 4: Reduce people's reliance on motor vehicles</u>

Objective 4: Encourage non-vehicular travel
The same design elements that create physical connections throughout the project site also reduce the need for motor vehicles because pedestrian and bicycle movement is promoted through safer streets and a walkable environment. In addition, the close proximity of amenities that offer a wide variety of activities makes it unnecessary for residents and people living nearby to take long trips in motor vehicles to reach similar destination.

<u>Goal 5: Minimize environmental disturbances</u>

Objective 5: Protect landform and natural systems to the extent practical
The most obvious example of protecting natural systems at the site is the extensive system of open spaces along the stream corridors, in most cases well beyond the statutory setback requirement. Protection of non-stream drainage channels in the western half-section of the site serves the same purpose. The inclusion of off-channel wetlands and other stormwater remediation strategies is aimed at reducing the amount of stormwater that reaches the stream channels to prevent excessive erosion.

To protect the existing landform, great care was taken to design streets and blocks in such a way that earthwork can be kept to a minimum. By running streets perpendicular to slopes where possible, the need for retaining walls between homes was eliminated. That same strategy creates spatial relationships whereby homes that face each other across streets and garages that face each other across alleys are at or near the same elevation without any need to significantly change the existing topography. In short, rather than conforming the land to the project, the project conforms to the land.

Goal 6: Have a positive influence on future growth in the Kansas City metro area

Objective 6: Provide a new model for future growth in the Kansas City metro area
With the exception of only a tiny number of projects based on traditional neighborhood design principles, the final design is dramatically different from other new developments in the Kansas City metro area. The project can serve as a model for future development based on everything from street and sidewalk design to its neighborhood structure and mix of uses. It also sets an example for a more thoughtful way of treating natural systems, stream corridors, and stormwater.

Response to Inventory and Analysis

Although the inventory and analysis for the project covered a broad spectrum of topics, four in particular stand out as having had the greatest impact on the program and design: (1) Streams and wetlands; (2) Major thoroughfares (3) Topography and landform; and (4) Adjacent land uses.

Streams and Wetlands
No existing condition had a greater impact on the entire project than streams and wetlands and the corresponding regulations establishing mandatory setbacks. By allowing the stream corridors to shape the design, other program elements fell into place by responding to those corridors.

Major Thoroughfares
If stream corridors formed the foundation for the project, the major thoroughfares adjacent to and passing through the project site became the framework on which the remainder of the design hangs. By approaching thoroughfares with the same attitude as the natural systems – that is to say, treating them as assets rather than obstacles – the thoroughfares became an integral part of the design, offering more than just a means of traveling between developments by motor vehicle.

Topography and Landform
Implementing traditional neighborhood design principles in the context of varying terrain and slopes introduces an element of complexity not present in many projects. Attempting to design the project in conformity with that terrain to avoid unnecessary earthwork requires a great deal of flexibility when it comes to street and block design. The key was to keep in mind the broader goals and objectives rather than dwelling on minutiae such as curb radii and precise block dimensions during the design process. By addressing the big picture, the details came together in the end.

Adjacent Land Uses
Identifying appropriate responses to adjacent land uses – particularly potential street connections – had nearly as much influence on the overall design as addressing the major thoroughfares. In fact, concern over creating optimal connections to the land west of the project site was a significant factor in deciding which preliminary design to choose for further development. Avoiding the appearance that the project has its back turned on the surrounding community was of the utmost importance throughout the entire process.

Concluding Remarks

The obvious connotation of this project's title refers to neighborhood design in Johnson County, Kansas and carries with it the implicit (if not particularly subtle) assertion that prevailing design patterns in the region are rather lacking. Clearly that is the focus of the project, from the goals and objectives to the final design.

However, there is more than one context in which one's perspective can change with regard to a project such as this one. In this case, it was learning to view the project site's existing conditions and natural systems as something other than obstacles to be overcome through the design process. It is one thing to simply lay out a site plan and then unleash the earth moving equipment to coerce the land into accepting a design, even if environmental regulations are adhered to. It is an altogether different undertaking to integrate natural systems into a design and treat them as an asset.

Given the popularity of traditional neighborhood design within both the design professions and the development industry today, it is surprising that so few projects among the enormous list of examples serve as a positive model for designing in harmony with existing natural systems. All too often the primary goal seems to be configuring the design to create as many lots as possible, while environmental priorities fall by the wayside.

It is not difficult to understand how this phenomenon occurs. Design is often seen as a process of identifying challenges and opportunities and then developing solutions to overcome the challenges and exploit the opportunities. If natural systems are viewed as challenges, the logical conclusion is that the design must somehow "overcome" them.

Reversing the tendency to view natural systems in what amounts to an inherently negative light has a profound impact on the way the design process occurs and the final product it yields. But making that reversal is not an onerous task. Even a small attitude adjustment can make a big difference. It just takes a change in perspective.

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