US 69
Corridor Management Plan

Bourbon County
January 2010

Prepared for: City of Fort Scott
Bourbon County
Kansas Department of Transportation

FELSBURG HOLT & ULLEVIG

RDG PLANNING • DESIGN

Acknowledgements

We wish to thank the following organizations and people for their involvement in this study

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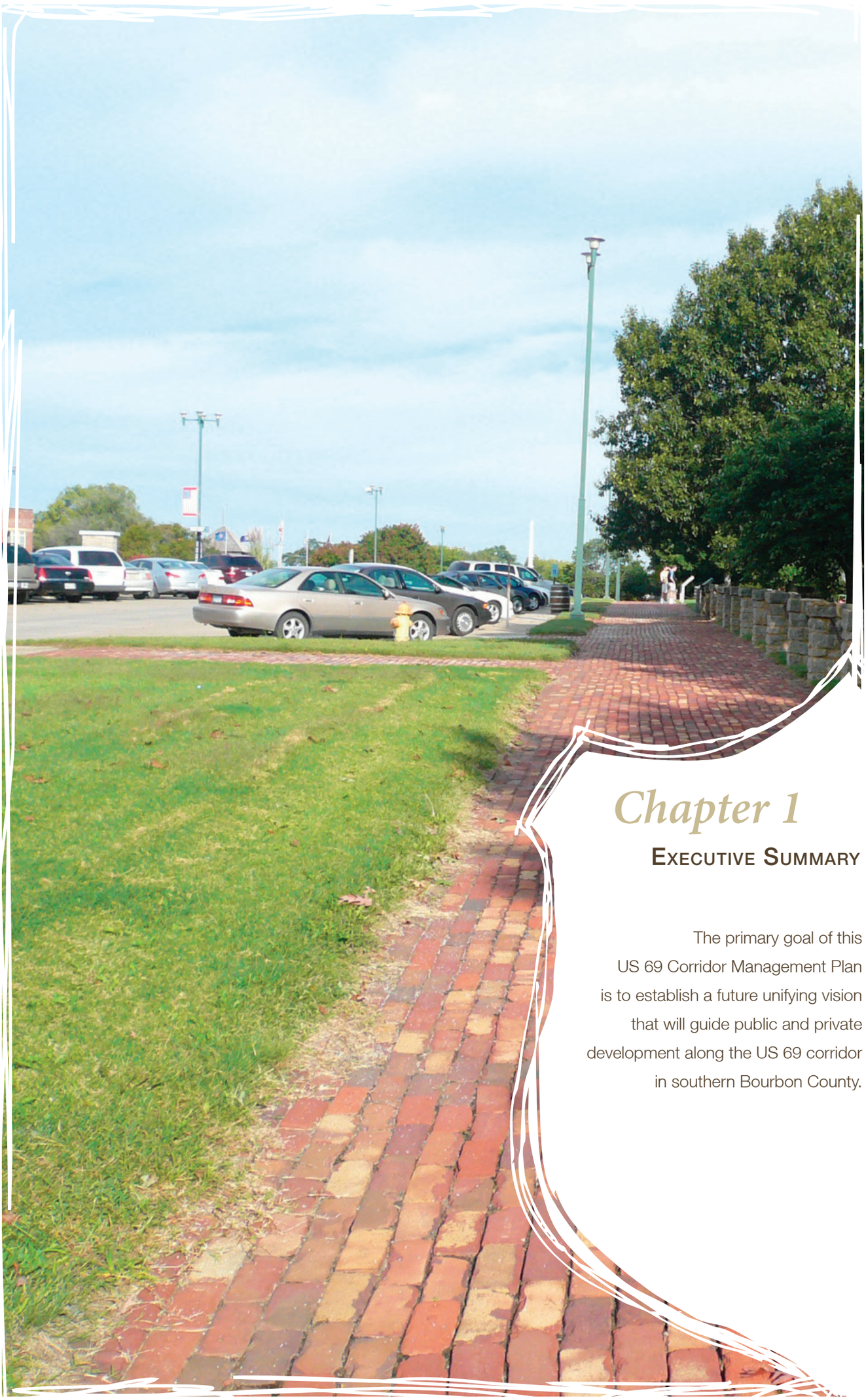
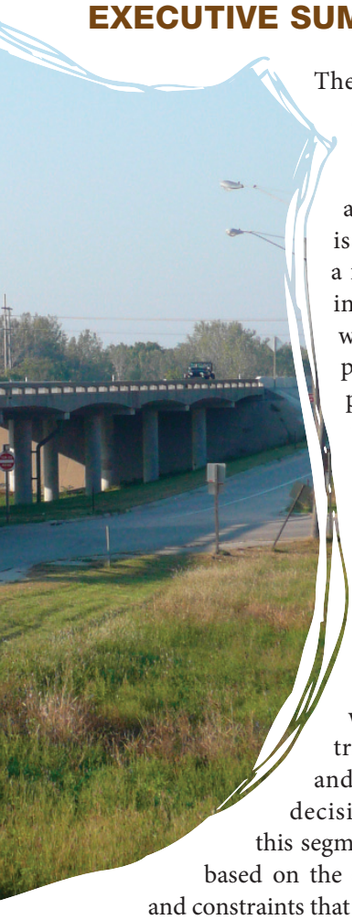


Chapter 1

Executive Summary

The primary goal of this US 69 Corridor Management Plan is to establish a future unifying vision that will guide public and private development along the US 69 corridor in southern Bourbon County.

EXECUTIVE SUMMARY



The primary goal of this US 69 Corridor Management Plan is to establish a future unifying vision that will guide public and private development along the US 69 corridor in southern Bourbon County. This vision establishes a framework for transportation and land use decisions along this segment of US 69, based on the opportunities and constraints that will affect the nature and extent of potential improvements during the next 30 years. The Kansas Department of Transportation (KDOT), City of Fort Scott, Bourbon County and the US 69 Highway Association have commissioned the development of this US 69 Corridor Management Plan to achieve the following important needs:

- Deliver a safe and efficient highway system to the citizens of Kansas by matching transportation improvement needs with available resources to preserve the system in place and support Kansas economic opportunities.
- Provide reasonable, safe access and efficient traffic movements for adjacent businesses and other types of development within Fort Scott and Bourbon County.
- Prevent the breakdown of system connectivity and regional mobility of transportation users and economic development along US 69 within and outside of the study area.
- Envision a major highway corridor as a resource that improves the quality of the built and natural environments, creates new investment opportunities, reinforces other community systems and priorities, and supports active transportation modes.

In addition to articulating a comprehensive vision for this segment of US 69 in Bourbon County, the study evaluates future traffic operations to determine if and how the existing US 69 alignment, particularly through Fort Scott, can continue to provide safe and efficient travel well into the future. The implementation of this plan addresses both the local community needs and regional travel demands, and guides transportation and land development decisions.

The plan also sets forth quantitative and qualitative performance measures to help decision makers identify when this highway segment fails to meet operational or safety standards or driver expectations. It is designed to protect existing and future highway investments while acknowledging that external influences also contribute to the corridor's long-term use.

Public Involvement

The US 69 corridor planning process offered opportunities and channels of communication to study area citizens and other stakeholders to review materials and offer their ideas and opinions on potential improvements. These opportunities included the distribution of project fact sheets and newsletters, community "drop-in" sessions at local establishments, presentations to civic groups, open house events, design studio workshops and a project website. The study team worked with KDOT's public participation specialists to advertise study events and coordinate with local media outlets.

Land Use and Urban Design

This document and the planning process that it produced envision the highway as a corridor for community development and renewal, addressing mobility, economics, design, recreation, history, and culture and the complex relationships that these aspects of the city have with one another. This vision also links the corridor with other community assets and ongoing projects into a "Great Circle." This circle of features and resources is made of three connected arcs – a community arc that incorporates US 69, the Buck Run Greenway that follows it, and important community features along the way; a river arc that follows the natural resource of the Marmaton River between the highway and Gunn Park; and a cultural arc, connecting Gunn Park, Fort Scott Community College, and the Bourbon County Fairgrounds back to US 69. The plan presents an urban design program to develop a strong brand for both the corridor and the city. It proposes a family of signage, public art and site furniture elements that provide a coherent design image and community brand, in turn encouraging economic revitalization and investment.

Because US 69 in Fort Scott is both a roadway and a greenway, the community development strategies described in this document build on these different but complementary roles. Roadway

enhancements are designed around the image and "brand" that Fort Scott presents to travelers along the highway. On the other hand, greenway development conceives of the highway as a community environment, designed to increase public use and re-imagine the corridor as a bridge rather than a barrier between east and west. Elements of this community role include pathway development, stream enhancements and stabilization, historic preservation, art, and historical interpretation.

But the roadway is also an avenue of commerce, a conduit that brings people to the adjacent business districts. Strategies are developed within this plan to strengthen the connection between the highway and Fort Scott's three primary business centers in historic downtown, the South National district and the South Main district. In addition, the plan proposes specific strategic concepts for each district, designed to take advantage of individual character. The downtown concept utilizes public investments as catalysts for private investment. Specific concepts improve the district's connection to the highway, make the Fort Scott national historic site more accessible and pleasant for visitors and better connected to the retail downtown, and create activity centers on vacant but strategic sites. The South National concept includes an improved street and public environment that improves vehicular and pedestrian circulation and visual quality, expands parking, and creates new development opportunities. The concept for the more auto-oriented South Main segment features a more attractive road environment, pathways and access for pedestrians and bicyclists, better transportation management, and improved site planning and utilization of land.

The plan also presents a future land use scenario within the study area for the 30-year period between 2010 and 2040, based on the citywide demands identified in a market analysis. The market analysis determined the future demand for residential, commercial and industrial/business uses and the opportunities presented by the corridor's context. This scenario provides both a basis for testing system capacity and performance, and a guide to land use policy for the study area. In summary, the future land use scenario established for the study area includes:

- About 30 acres of land for commercial use.
- A minimum of 72 acres of land for industrial use.
- About 160 acres of residential land.

The plan's implementation program presents a comprehensive plan and regulatory framework to guide future land use decisions, establish appropriate design guidelines, preserve the integrity of the US 69 right-of-way and ensure that investments made in the highway and its environs continue to provide good transportation service well into the future. This program recommends development and adoption of an overlay zoning district that should be applied through both the urban and rural sections of the highway. Effective land use regulation in the corridor will require a formal, cooperative relationship between city and county, enshrined though an interlocal agreement.

Transportation Enhancements

A travel demand model was developed for the roadway system within the study area utilizing a combination of trips anticipated from the future land use plan and the growth in background traffic on US 69 and the local street network. While overall traffic growth on US 69 in the vicinity of Fort Scott has been negligible, truck volumes have increased while passenger car volumes have decreased. To account for these differences, this study uses two different growth rates to forecast future volumes.

A growth rate of 0.25 percent per year was applied to the total traffic volumes and a 1.5 percent annual growth rate was applied to heavy vehicle traffic only. The compilation of these two growth rates in the traffic forecasting produces an annual growth rate slightly over 1 percent from 2009 to 2040, similar to the historic growth in the region on US 69 over the last eight years.

Traffic forecasts for the planning horizon of 2040 were developed for both the No-Build and Ultimate scenarios. The 2040 No-Build scenario assumes that the existing roadway network would remain as is, and growth and development patterns in the study area would continue at the historical rates. The 2040 Ultimate scenario assumes that the recommended transportation system improvements would be in place and additional growth and development occurs based upon the future land use plan assumptions.

The future traffic operations analysis and crash history along the US 69 corridor generated an array of recommended transportation improvements. Generally, the roadway system improvements are based upon implementing access management principles and providing safety and operational improvements. The recommended transportation improvements for the 2040 Ultimate scenario consist of the following:

- **US 69 Widening** – the rural section from Arma to K-7 widened to four-lanes and the urban section from north of 23rd Street through the intersection with South National

Avenue widened to five-lanes.

- **Traffic Signal Communication** – installation of a hardwire interconnect between all of the traffic signals on US 69 in Fort Scott, from 3rd Street to 25th Street.
- **Dilemma Zone Protection/ Advanced Warning Beacons** – update and improve the dilemma zone protection and advance warning beacons provided at several signalized intersections.
- **Intersection Improvements** – a variety of intersection improvements to address safety concerns identified in the crash analysis.
- **Off-System Improvements** – including the construction of the proposed grade separation over the BNSF tracks at 23rd Street, implementation of railroad crossing improvements to establish a quiet zone through town, and construction of a local street network on the east and west sides of US 69, between 18th Street and 23rd Street.
- **Pedestrian and Bicycle Improvements** – an integrated approach to providing enhancements to encourage non motorized trips within the community, comprised of multi-use pathways, enhanced sidepaths, complete streets, bicycle boulevards and local streets.

In conjunction with the highway widening and intersection improvements recommended, an access management plan was developed to provide guidance on implementing strategies to improve traffic flow by reducing conflicts between vehicles operating at different speeds. Although it may not be immediately possible to consolidate or eliminate access points along the highway, opportunities may arise to implement the access management strategies identified in this document. These strategies include closing access points, establishing shared access points, implementing approval processes and conditions and coordinating access management between the City of Fort Scott, Bourbon County and KDOT.

Performance Measures

Performance measures that assess future system functionality of the US 69 corridor were identified to evaluate the continued effectiveness of transportation improvements after their completion and monitor whether the enhanced system on its existing alignment continues to provide acceptable operations through the 30-year study horizon. A number of performance factors apply to the function, service, safety, and performance of the US 69 corridor. Evaluating operations against these factors helps engineers, planners and policy makers understand the changing dynamics of the system, and how to preserve, recover, and enhance its functionality. These performance measures also compare US 69 operations to statewide rates for similar facilities, and track performance trends over time. Ultimately, they help decision-makers decide whether the current corridor provides the functionality and safety expected by its users and stakeholders.

Performance measures recommended for the segment of US 69 in Bourbon County include:

- **Customer Satisfaction** - Periodic surveys can measure the public's satisfaction with roadway condition, management and traffic operations on a given segment of highway.
- **Crash Rates** - This plan has established US 69 baseline crash rates for the corridor, providing a background for regular evaluation of annual crash rates to identify upward trends.
- **Total Freight Movement** - US 69 is a critical rural link between the State's agriculture and manufacturing industries and statewide, regional, and national markets. Growth in freight movements, projected at about 1.5% annually for the next 20 years, may challenge future system capacity.
- **Traffic Flow** - Most measurements of traffic flow along corridors or highway segments apply to congested urban areas and freeways. However, the measures presented in this document are appropriate to US 69 in the study area, and include travel time, average speed, vehicle throughput, heavy truck traffic, travel time reliability and level of service.

Taken together, these performance measures can indicate how well the US 69 corridor is operating in Bourbon County, and are most effectively used by tracking changes over time. Trends should be monitored regularly to assess the ongoing health of the corridor's function, rather than waiting until specific thresholds are reached.

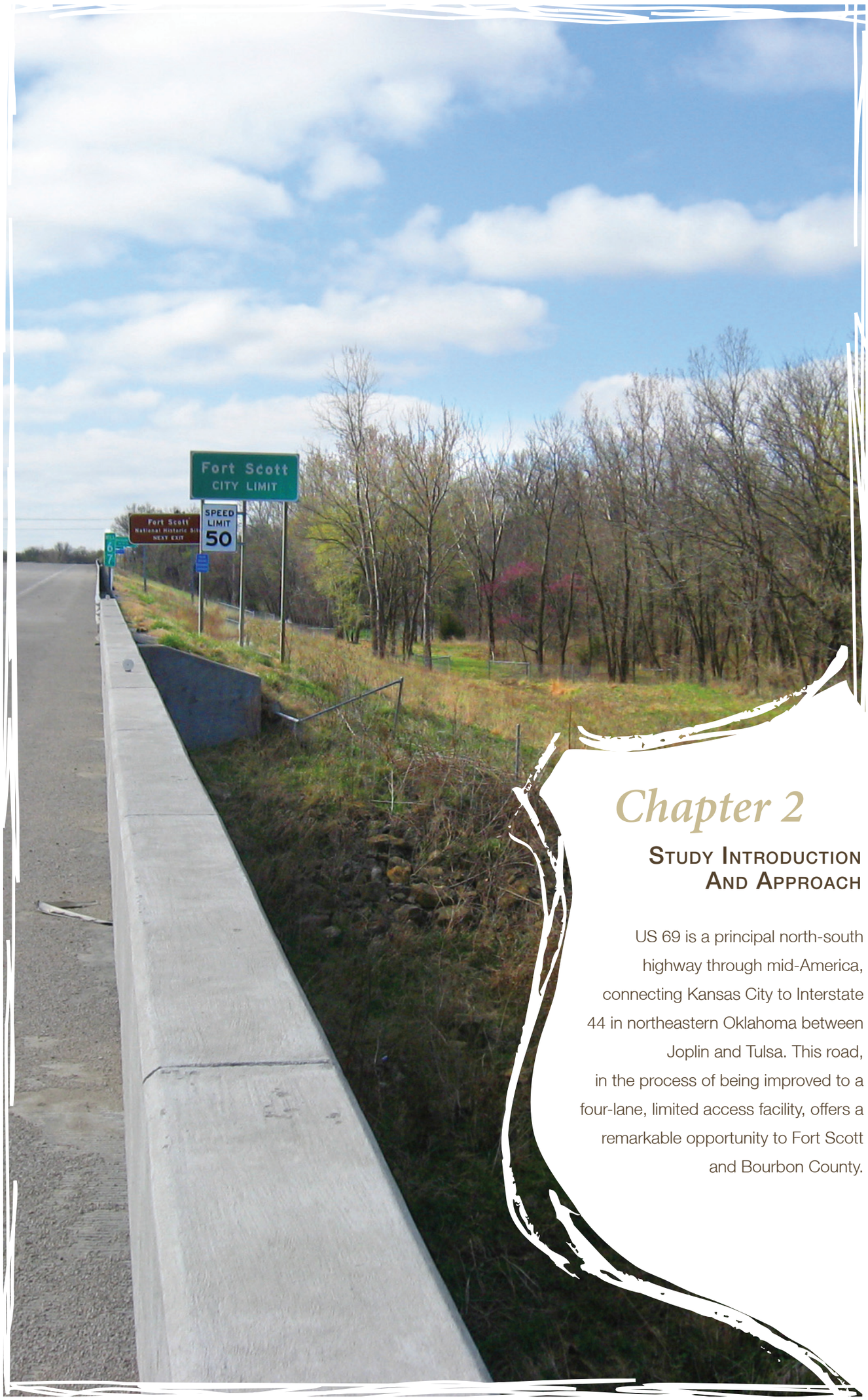
Implementation

As a part of the intergovernmental agreement that will be entered by KDOT, the City of Fort Scott and Bourbon County, a Corridor Advisory Committee will be formed, with representatives of each jurisdiction. This committee will be an advisory body that regularly reviews and evaluates events and developments affecting the US 69 corridor and the Corridor Management Plan. The Committee will also evaluate the ongoing performance of the corridor, using these measures as tools for its analysis.

With development of the system improvements recommended by this plan, the US 69 corridor through Fort Scott and Bourbon County is anticipated to function at or above regional performance target thresholds through 2040. However, satisfaction of local and regional customers, along with external political and business interests, may determine that the existing alignment through Fort Scott does not meet their functional objectives.

Were a new US 69 alignment to be constructed in or around the study area, the existing US 69 corridor through Fort Scott would become a business route for local traffic or through traffic seeking services. Under this scenario, system upgrades, including traffic and safety improvements and access management implementation, are still necessary to provide a safe and efficient transportation system in the interim. As important, implementing this program converts the existing corridor into a major community asset on many levels, adding opportunities for new development, and making the great and historic community of Fort Scott an even better place for living, working, shopping, and enjoying.

This US 69 Corridor Management Plan presents an ambitious but realistic program for this important corridor in southeast Kansas. An implementation plan was developed to present a roadmap to guide elected officials and other decision makers through the process of setting priorities and phases, and securing the funding that will realize the transportation and community development promise presented within this document.



Chapter 2

Study Introduction And Approach

US 69 is a principal north-south highway through mid-America, connecting Kansas City to Interstate 44 in northeastern Oklahoma between Joplin and Tulsa. This road, in the process of being improved to a four-lane, limited access facility, offers a remarkable opportunity to Fort Scott and Bourbon County.

STUDY INTRODUCTION AND APPROACH

US 69 is a principal north-south highway through mid-America, connecting Kansas City to Interstate 44 in northeastern Oklahoma between Joplin and Tulsa. This road, in the process of being improved to a four-lane, limited access facility, offers a remarkable opportunity to Fort Scott and Bourbon County. As traffic along the upgraded US 69 increases, the mixing of through and local traffic will demand functional improvements to improve both the capacity and safety of the highway. But this added traffic also introduces more potential customers and substantial economic possibilities for the city and county. Indeed, US 69 can become a catalyst for community development in the historic city of Fort Scott, combining transportation improvements, urban design, quality of life improvements, sustainability, and economic development into a comprehensive concept for a city that combines a unique past with a promising future.

PROJECT DESCRIPTION AND LOCATION

The primary goal of this US 69 Corridor Management Plan is to establish a future unifying vision that will guide public and private development along the US 69 corridor in southern Bourbon County. This vision establishes a framework for transportation and land use decisions along this segment of US 69, based on the opportunities and constraints that will affect the nature and extent of potential improvements during the next 30 years.

The US 69 study area, illustrated in **Figure 2.1**, extends about ½ mile on either side of the US 69 centerline from the Crawford/Bourbon County line to US 69's interchange with westbound US 54. Within the corporate limits of Fort Scott, where existing and proposed land use is closely tied to the local transportation network, the study area also includes the local street system between Margrave and Horton Streets.

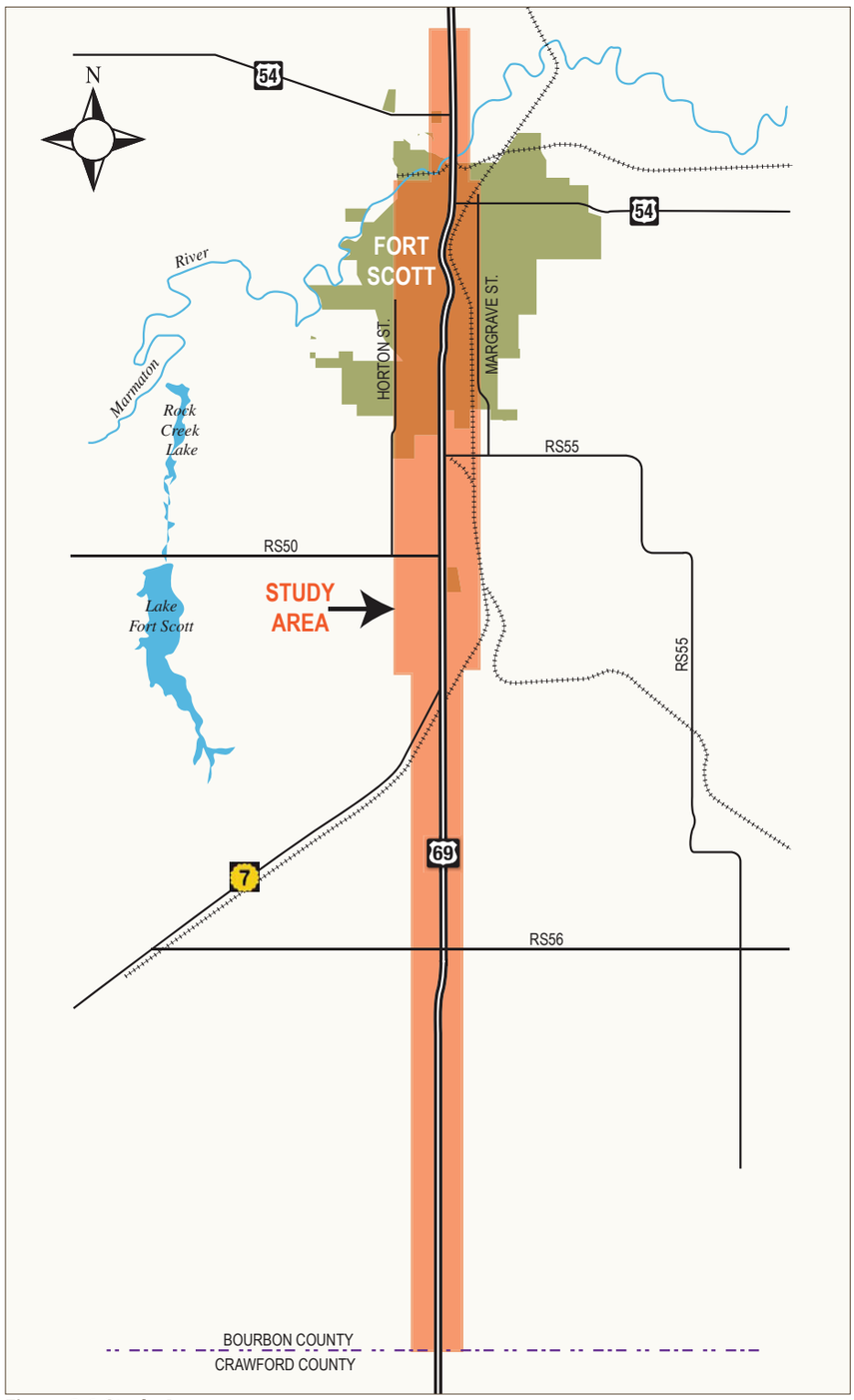


Figure 2.1 Study Area

This section of US 69 can be viewed as three context-based segments through the study area:

- **An urban corridor**, between westbound US 54 and National Avenue, passing through the heart of the city's established residential and commercial neighborhoods. Access to the highway here is limited to the two US 54 interchanges and signalized intersections at 3rd, 6th, and 12th Streets.
- **An automobile- oriented mixed use corridor**, between National Avenue and Jayhawk Road. Surface access to cross streets and adjacent businesses is provided by numerous curb cuts, left-turn lanes, and signalized intersections.
- **A rural segment,** between Jayhawk Road and the Bourbon County line, that serves the Fort Scott Industrial Park and continues through the agricultural landscape of Bourbon County. Within this southern section, the roadway utilizes a four-lane divided rural cross-section north of the junction with K-7 to a two-lane rural section south of K-7.

Need for the Project

The Kansas Department of Transportation (KDOT), City of Fort Scott, Bourbon County and the US 69 Highway Association have commissioned the development of this US 69 Corridor Management Plan to achieve the following important needs:

- Deliver a safe and efficient highway system to the citizens of Kansas by matching transportation improvement needs with available resources to preserve the system in place and support Kansas economic opportunities.
- Provide reasonable, safe access and efficient traffic movements for adjacent businesses and other types of development within Fort Scott and Bourbon County.
- Prevent the breakdown of system connectivity and regional mobility of transportation users and economic development along the US 69 Highway within and outside of the study area.
- Envision a major highway corridor as a resource that improves the quality of the built and natural environments, creates new investment opportunities, reinforces other community systems and priorities, and supports active transportation modes.

Project Background

Although KDOT has invested around $250 million a year since 2000 to provide additional highway capacity, the number of congested lane miles has grown an average of four percent each year. The Statewide Congestion Map (**Figure 2.2**) from the 2008 KDOT Long Range Transportation Plan shows that the segment of US 69 from Fort Scott to the Oklahoma state line will face mild to severe congestion by 2030. With too many capacity issues and too little funding, KDOT is considering a variety of methods to address transportation problems across the state.

One such strategy is to be certain that improvements are indeed warranted and to utilize intermediate improvements to extend the life of the system without compromising safety, access, or economic development. This study provides KDOT with the information necessary to evaluate capacity improvements and collaborate with local leaders on a program of transportation and land development strategies that maximize the use of the existing US 69 Corridor.

There are two significant and highly integrated scales of demand placed upon this study corridor. From a statewide perspective, the US 69 corridor holds regional value and economic potential for the movement of north-south traffic from the Kansas City metropolitan area to I-44 in Oklahoma and points south. The KDOT Corridor Management Policy classifies this corridor as a Class "B" route, with statewide significance and providing limited access, high-speed travel that accommodates long-distance truck traffic. Class "B" routes are designed to promote fluid movement and minimize friction between through and local traffic, allowing direct access only when alternatives are unfeasible.

This regional route concept appears to conflict with the current alignment and traffic operation of US 69 inside Fort Scott's urban area. Local trip movements that either cross the main line or require access to adjacent destinations place high demands on this highway segment. These movements typically are accommodated by signalized and non-signalized intersections. **Table 2.1** illustrates steady growth in traffic volume during the past 30 years, caused by increases in both local traffic and regional traffic streams.

With recently completed investments, US 69 now offers a four-lane freeway section with full access control for approximately 80 miles between I-435 and the interchange with westbound US 54, north of Fort Scott. After several studies, design plans are being prepared to widen US 69 to a four-lane freeway from the Oklahoma border to the north side of Arma, including a bypass to the west of Pittsburg. From Arma to Fort Scott, the original concept proposed a four-lane expressway section, with at-grade intersections with county roads and half-mile typical spacing of other access points. KDOT is beginning a study of alternatives to this approach, including construction to freeway standards or initial expressway development with the potential for future upgrade to a freeway.

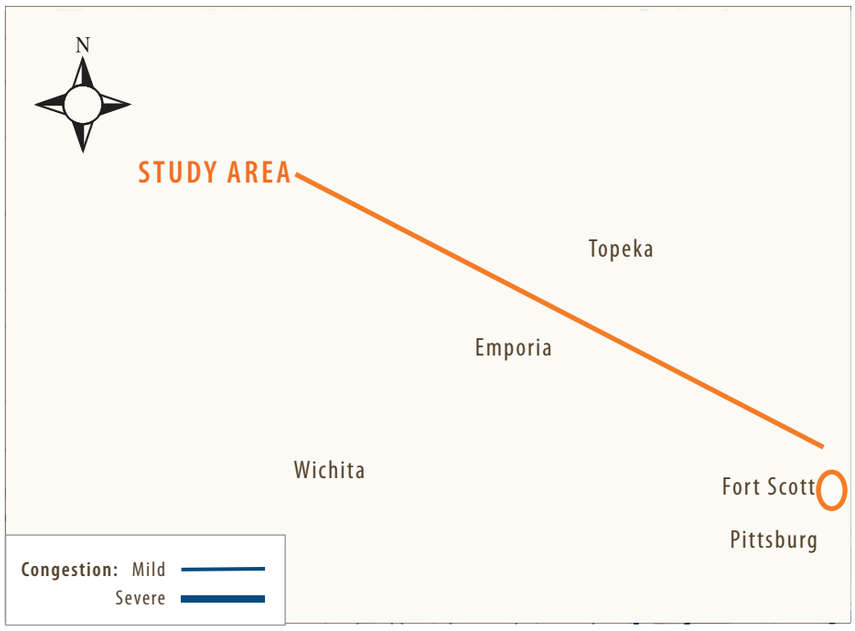


Figure 2.2 2008 KDOT LRTP Projected Highway Miles at or Nearing Congestion in 2030

Table 2.1 **Historical Traffic Volumes**

Segment of US 69	1976	1980	1985	1991	1997	2000	2006
At Jayhawk Road	5,500	6,885	6,370	7,850	8,195	8,880	11,500
At 20th Street	11,870	14,130	14,503	15,040	16,740	17,650	18,150
At 12th Street	6,640	8,085	8,718	10,520	11,760	13,295	13,410
At 6th Street	7,930	9,380	9,690	10,745	11,740	13,190	12,330
North of Wall Street	5,950	7,420	7,410	7,220	9,005	8,220	9,030

Source: KDOT

The KDOT District Four Corridor Management Policy designates US 69 around Pittsburg as a protected corridor due to competition from interstate trip movements, the presence of local trips, adjacent commercial and industrial development, and other traffic flow characteristics such as traffic volume and safety. Finally, the US 69 Highway Association has the stated goal to "finish what was started" by completing construction of a four-lane divided highway for the entire length of US 69 between Johnson County and the Oklahoma state line in Cherokee County.

STUDY GOALS AND OBJECTIVES

In addition to articulating a comprehensive vision for this US 69 segment in Bourbon County, the study will evaluate future traffic operations and determine if and how the existing US 69 alignment, particularly through Fort Scott, can continue to provide safe and efficient travel well into the future. This information will enable all stakeholders to cooperatively implement a corridor management plan that addresses both the local community needs and regional travel demands, and guides transportation and land development decisions. The management plan also sets forth quantitative and qualitative performance measures to help decision-makers identify when this highway segment fails to meet operational or safety standards or driver expectations.

This corridor management plan is designed to protect existing and future highway investments while acknowledging that external influences also contribute to the corridor's long-term use. It also considers the inter-related forces and requirements that affect the future of the county, city, and US 69 itself.

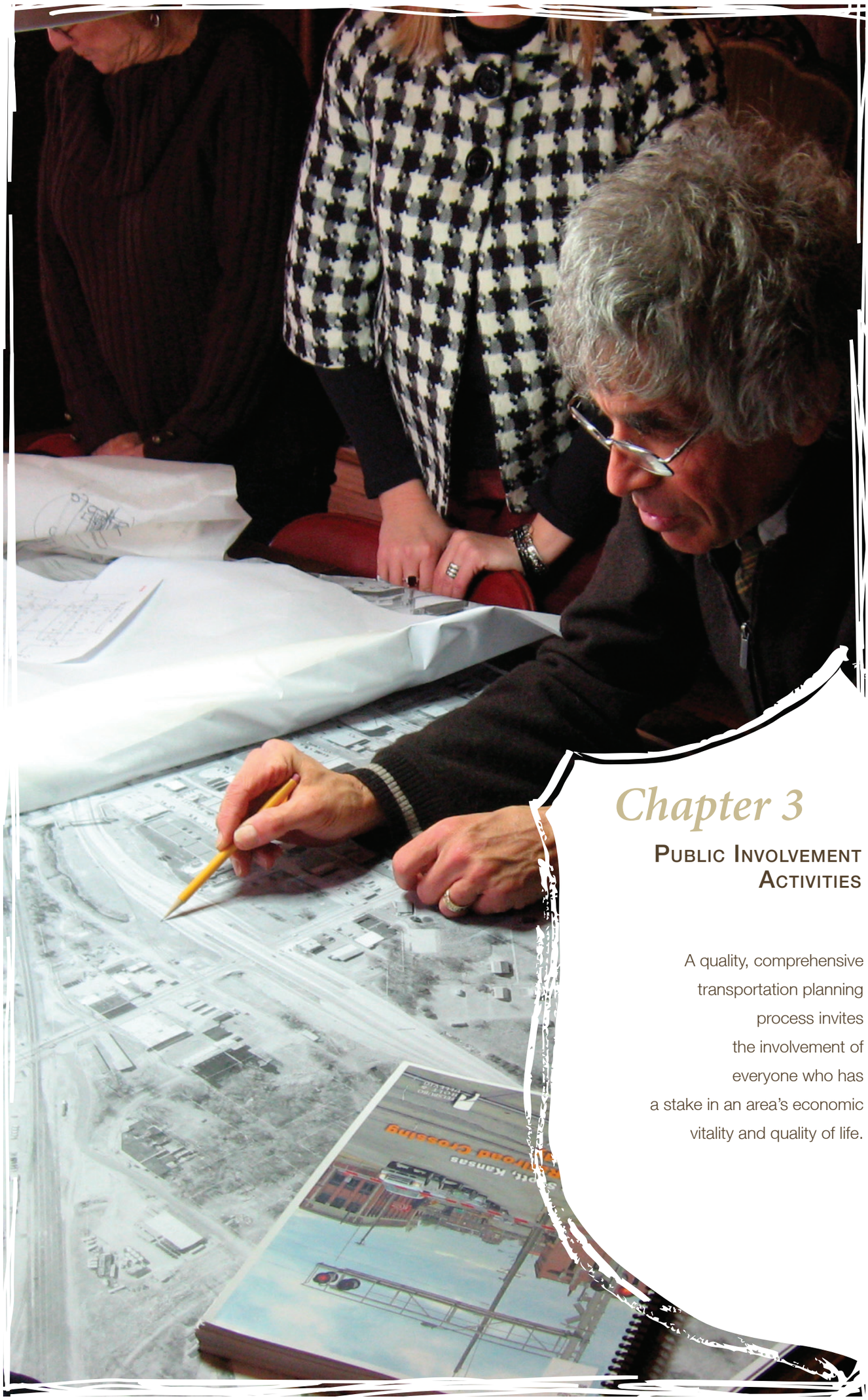
As such, the study's key goals are to:

- Identify the nature of existing and future travel demand along the US 69 corridor.
- Estimate the expected remaining life for the existing corridor.
- Develop a comprehensive land use and zoning plan for the entire corridor.
- Determine recommended improvements to US 69 to provide a safe and efficient transportation corridor that accommodates existing and future traffic demands.
- Develop performance measures for the corridor.
- Develop an access management plan for the corridor.
- Provide a safe and attractive transportation facility that serves Fort Scott and the region well into the future.
- Provide adequate capacity to meet both regional and local traffic demands as long as feasible.
- Create a focus for economic and community development efforts.
- Unify rather than divide Fort Scott's neighborhoods.
- Improve the quality and economic potential of Fort Scott's major business districts: Downtown, South National, and South 69 Highway.
- Strengthen Fort Scott's image by enhancing design quality.
- Create a sustainable corridor that manages the environmental impact of a major roadway.

US 69 Corridor Management Plan Content

This US 69 Corridor Management Plan was prepared to summarize the activities and work effort associated with the corridor study. The information begins from the vantage point of evaluating the useful life of the existing corridor and incorporates the input obtained through the various public involvement activities and analysis of existing transportation and land use conditions. Based on this information this plan summarizes the development of concepts for enhancements to improve traffic flow, circulation and redevelopment opportunities. These efforts culminate in the establishment of traffic management and access management plans, followed by an implementation plan providing information regarding funding opportunities and phasing recommendations. The report content is organized as follows:

- Study Introduction and Approach
- Public Involvement Activities
- Analysis of Existing Conditions
- Land Use and Development
- Development Concepts
- Traffic Forecasting Analysis
- Traffic Management Plan
- Access Management Plan
- Future System Functionality
- Implementation Plan



Chapter 3

Public Involvement Activities

A quality, comprehensive transportation planning process invites the involvement of everyone who has a stake in an area's economic vitality and quality of life.

PUBLIC INVOLVEMENT ACTIVITIES

The US 69 corridor planning process offered opportunities and channels of communication to study area citizens and other stakeholders to review materials and offer their ideas and opinions on potential improvements. These opportunities included:

- Fact sheets and newsletters
- "Drop-in" sessions
- Presentations to civic groups
- Project website
- Open House events
- Design studio workshops

Stakeholder outreach

Fact sheets and project newsletters were developed and distributed in advance of two scheduled rounds of public information open house meetings. The publications communicated study history, goals and objectives, public participation opportunities, key findings and work schedule. These publications, shown in **Figure 3.1**, were also available electronically (website posting, e-mail) and in hard copy at the Fort Scott Public Library and the Fort Scott Area Chamber of Commerce. Copies of these outreach materials are provided in the **Technical Appendix.**

The study team also used a "go-to-them" approach to engage stakeholders directly and solicit feedback. Members of the study team staffed community "drop-in" sessions at the local McDonald's and Daylight Donuts, encouraging informal discussions about study issues, areas of interest, and potential recommendations. Additionally, the study team made presentations to civic organizations, including the Kiwanis and Rotary Clubs.

Stakeholders were also encouraged to visit a dedicated project website to submit comments electronically.

On-line information

The Kansas Transportation Online Community (KTOC) is a virtual meeting place and conversation center for any and all transportation-minded professionals and citizens. The US 69 Corridor Management Plan was the first KDOT corridor management plan to make use of this communication tool. KTOC was used to post files, announce meetings, organize interested stakeholders and facilitate discussion about the project.

US69CorridorStudy.com, as shown in **Figure 3.2**, was developed as a stand-alone, project internet presence with a direct hyperlink available through the home pages of the KTOC, City of Fort Scott, Bourbon County and the Fort Scott Chamber of Commerce.

The site included the following sections and supporting information:

- *Study background and purpose* – History and background, study area description and map, study team information and work schedule
- *Updates and information* – Fact sheets/newsletters, press releases, meeting minutes, presentation display boards, etc.
- *Download presentations* – PowerPoint presentations synched to audio from Design Studio presentations, Open House display boards
- *Contact Us* Information on how to provide input directly to the project team.

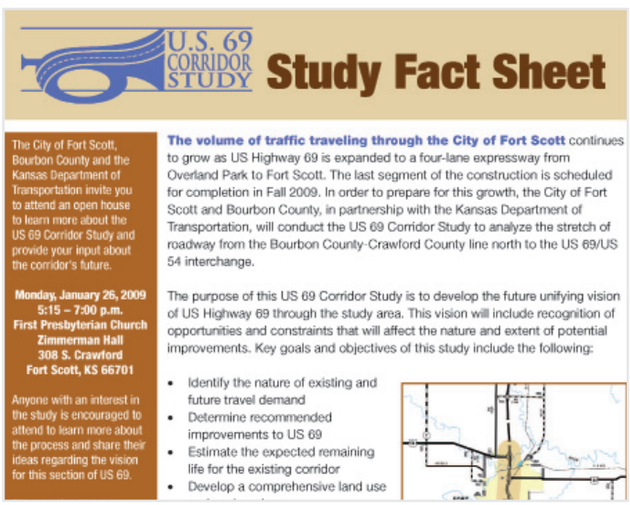
The site was a clear and cost-efficient way to provide additional information and updates to interested parties throughout the process.

Public information open house meetings and design workshops

Open House #1

An introductory open house meeting was held Monday, January 26th, 2009 from 5:15 p.m. to 7:00 p.m. at Zimmerman Hall in the First Presbyterian Church, 308 S. Crawford. Fact sheets with background information and announcements about the meeting were distributed in advance of the open house with the help of the City of Fort Scott, Bourbon County and the Fort Scott Chamber of Commerce. A paid advertisement was placed in the Fort Scott *Tribune* January 24th, 2009.

Despite icy conditions, nearly 40 community members and business own-


U.S. 69 CORRIDOR STUDY

Study Fact Sheet

The City of Fort Scott, Bourbon County and the Kansas Department of Transportation invite you to attend an open house to learn more about the US 69 Corridor Study and provide your input about the corridor's future.

Monday, January 26, 2009
5:15 – 7:00 p.m.
First Presbyterian Church
Zimmerman Hall
308 S. Crawford
Fort Scott, KS 66701

Anyone with an interest in the study is encouraged to attend to learn more about the process and share their ideas regarding the vision for this section of US 69.

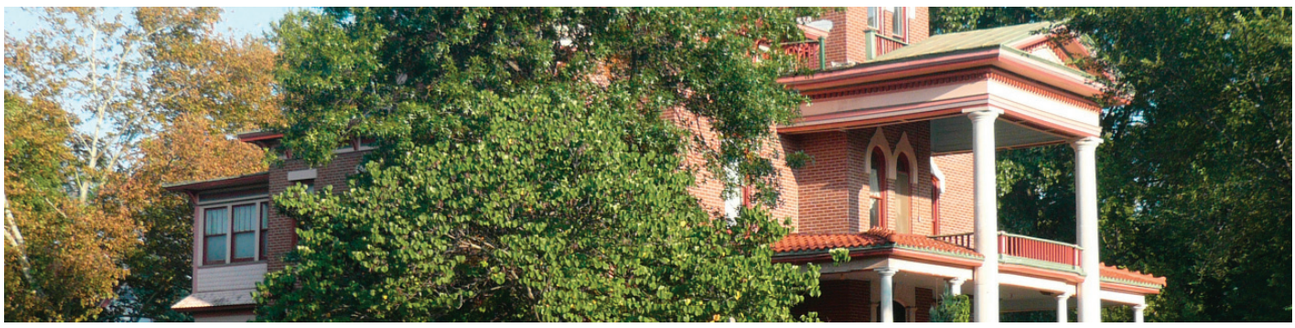
The volume of traffic traveling through the City of Fort Scott continues to grow as US Highway 69 is expanded to a four-lane expressway from Overland Park to Fort Scott. The last segment of the construction is scheduled for completion in Fall 2009. In order to prepare for this growth, the City of Fort Scott and Bourbon County, in partnership with the Kansas Department of Transportation, will conduct the US 69 Corridor Study to analyze the stretch of roadway from the Bourbon County-Crawford County line north to the US 69/US 54 interchange.

The purpose of this US 69 Corridor Study is to develop the future unifying vision of US Highway 69 through the study area. This vision will include recognition of opportunities and constraints that will affect the nature and extent of potential improvements. Key goals and objectives of this study include the following:

- Identify the nature of existing and future travel demand
- Determine recommended improvements to US 69
- Estimate the expected remaining life for the existing corridor
- Develop a comprehensive land use

Figure 3.1 Study Newsletter

Figure 3.2 US 69 Project Web Site



ers turned out to learn more about the study and provide their input about the future of the corridor. Members of the study team introduced the study with a brief opening presentation. Attendees then spoke one-on-one with study team members at stations located throughout the room, discussing their ideas and concerns about the corridor. At the open house, stakeholders received an introductory fact sheet with basic information about the study and a project schedule.

A sign-in table with sign-in sheets was provided, along with comment cards to be completed during the meeting and/or up to three weeks after the conclusion of the meeting. Stakeholders were also invited to submit comments and questions electronically to **info@us69corridorstudy.com.**

Public Design Workshop #1

The first of two public design workshops took place on Monday, April 6th, 2009 from 11 a.m. to 1 p.m. and from 4 p.m. to 6 p.m. at the Lyons Twin Mansions, 750 S. National. Posters about the workshop were distributed throughout the city to notify interested stakeholders. In addition, stakeholders who attended the January 26th open house received e-mail notification about the workshop. A story in the Fort Scott *Tribune* on March 31st also notified area residents and property owners about the upcoming workshop. Announcements about the workshop were placed on the website: **www.US69CorridorStudy.com**

More than 30 stakeholders collaborated with the study team to develop and analyze recommendations for the section of US 69 from US 54 to South National. The workshop concluded with a summary presentation on Tuesday, April 7th, 2009 at 5:30 p.m. to nearly 20 residents and local business owners. The study team presented preliminary crash and traffic data, and displayed initial sketches for development plans in downtown and the South National business district.

Public Design Workshop #2

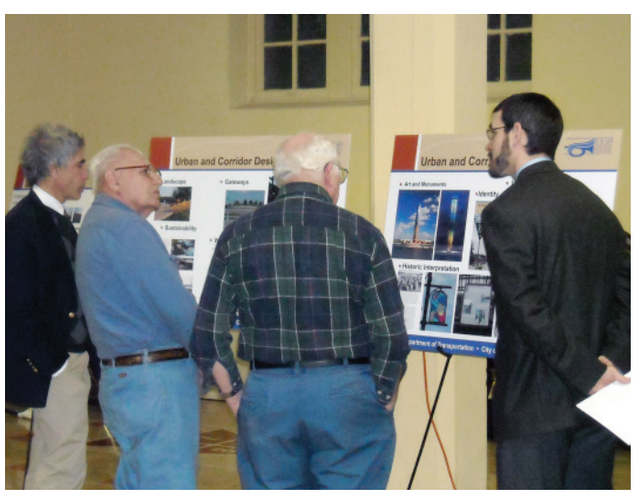
The second public design workshop took place on Tuesday, April 21st, 2009 from 11 a.m. to 1 p.m. and from 4 p.m. to 6 p.m. at the Lyons Twin Mansions, 750 S. National. Posters about the workshop were again distributed throughout the city to notify interested stakeholders. In addition, stakeholders who attended the January 26th open house and the first design workshop on April 6th received e-mail notification about the workshop. A story in the Fort Scott *Tribune* on April 17th also notified area residents and property owners about the upcoming workshop. Announcements about the workshop were placed on the website: **www.US69CorridorStudy.com**

Nearly 30 stakeholders collaborated with the study team, this time focusing on the section of US 69 from South National to the Bourbon County line. The study team summarized concepts developed during the design studio on Wednesday, April 22nd, 2009 at 5:30 p.m. to nearly 20 residents and local business owners. Again, study team members discussed preliminary crash and traffic data, and presented initial concepts for intersection improvements, access control and redevelopment possibilities.

Open House #2

An open house meeting summarizing the progress of the US 69 Corridor Study was held Thursday, September 17th, 2009 from 4 p.m. to 6 p.m. at the H.L. Stout Building, 3 W. Oak Street. Fact sheets with progress update information and announcements about the meeting were distributed in advance of the meeting through the City of Fort Scott, Bourbon County, Fort Scott Chamber of Commerce and to stakeholders who attended the first open house and/or one of the April design workshops. Paid advertisements were placed in the Fort Scott *Tribune* September 11th, 12th and 16th; the Weekend *Herald-Tribune* on September 12th; and the *Nevada News* on September 16th.

Approximately 40 stakeholders attended this unveiling of preliminary study findings and recommended transportation improvements and community enhancements. Study team members began with a brief presentation about the study's progress, followed by one-on-one conversations on preliminary conclusions at topical stations located around the room. Attendees received



US 69 Open House in January 2009

Design studio workshop conducted in April 2009

fact sheets outlining the updates that were presented at the open house.

A sign-in table with sign-in sheets was provided, along with comment cards to be completed during the meeting. Stakeholders were also invited to submit comments and questions electronically to **info@us69corridorstudy.com.**

Steering and Corridor Advisory Committees

To ensure early participation of specific, targeted audiences, study steering and corridor advisory committees were formed. The study team met with the steering committee and advisory group throughout the study. The steering committee included representatives from the City of Fort Scott, Bourbon County, the Kansas Department of Transportation and the US Highway 69 Association. **Table 3.1** lists the organizations, agencies and business represented in the Corridor Advisory Committee:

Table 3.1 **Corridor Advisory Committee Representatives**

- Bourbon County Commission
- Bourbon Co. Economic Develop. Council
- Bourbon County Sheriff's Office
- Captured Images
- Century 21 Real Estate
- CIGNA
- Citizens Bank
- City of Fort Scott Commission
- City of Fort Scott Economic Development
- City of Fort Scott Fire Department
- City of Fort Scott Police Department
- City of Fort Scott Public Works
- Courtland Spa
- First Baptist Church
- First Southern Baptist Church
- Fort Scott Area Chamber of Commerce
- Fort Scott Community College
- Fort Scott National Historic Site
- Kansas Department of Transportation
- Key Industries
- McDonald's
- Mercy Health System of Kansas
- Mid-Continental Restoration Company
- Shepherd Team Auto
- Skitch's Hauling & Excavation
- State of Kansas
- Stewart Realty
- UMB Bank
- Unified School District 234
- Union State Bank
- ValuMerchandising Company
- Walmart
- Woods Supermarket
- YRC Logistics

Final Open House conducted in September 2009

Design studio workshops conducted in April 2009

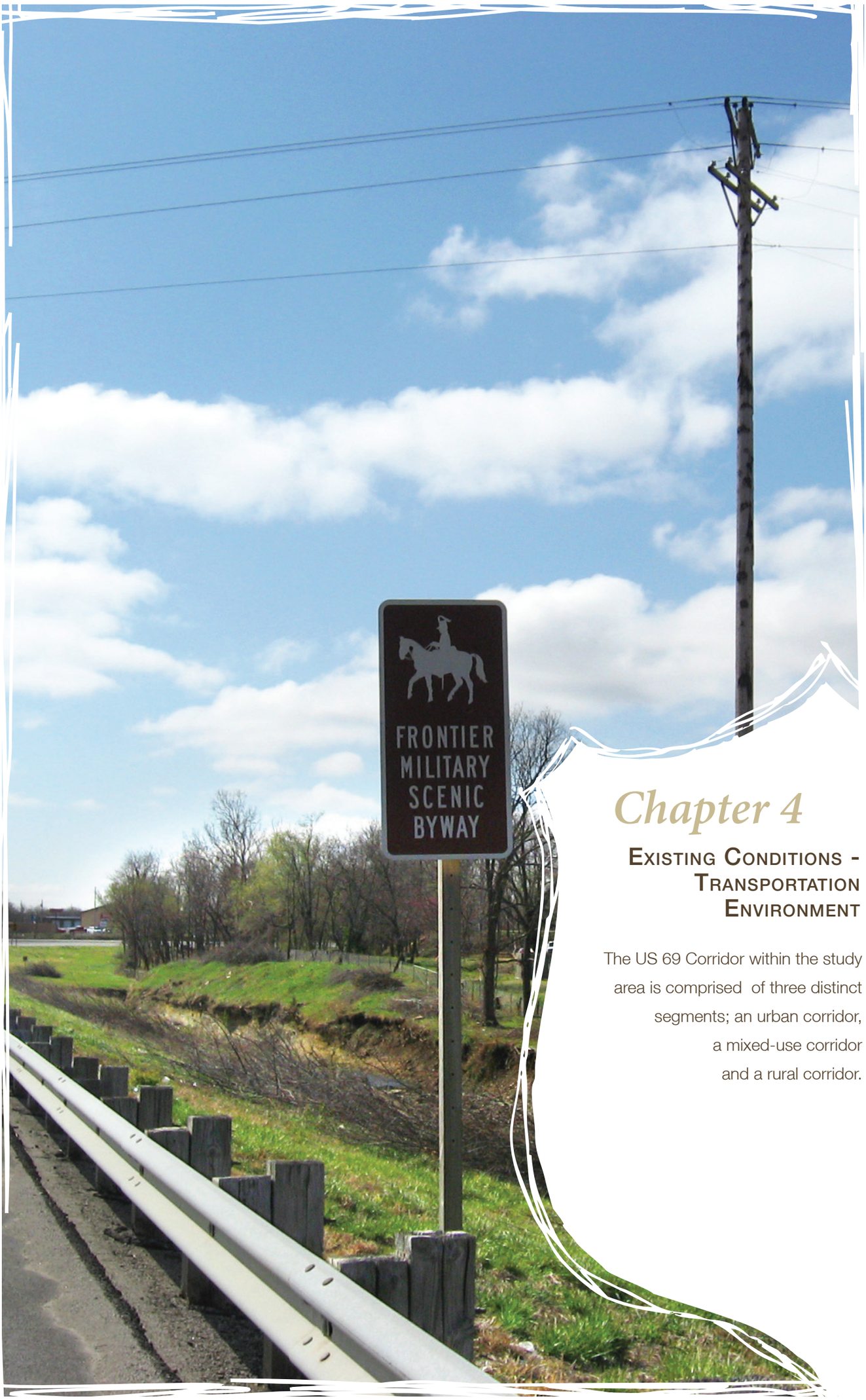
Summary of Public Comments

Throughout the study process, comments were received from the public and community stakeholders. These comments were made directly to the study team, provided in writing from those attending one of the public engagement events, or through comments received on the project website. A brief summary of the comments received were grouped into similar categories:

In addition to the comments summarized in **Table 3.2** below, participants commented extensively on concepts developed during the course of the design studio workshops and presented at the open house meetings. Responses to the written comments received were addressed during the development of the recommended improvements.

Table 3.2 **Summary of Public Comments**

Topic	Comment
Bicycle Accommodations	Concern was expressed about the lack of bicycle facilities in Fort Scott. It was recommended that this study accommodate bicycles along the US 69 corridor. Interest was also expressed in bicycle lanes, trails and development of a paved shoulder policy to accommodate bicycle transportation.
Fort Scott Bypass	This topic came up repeatedly during the course of the study. Many citizens wanted this study to address the need for and alignment of a four-lane bypass around Fort Scott.
US 69 South of Fort Scott	Many participants supported a freeway section for US 69 between Arma and Fort Scott. This would match the facility completed between Fort Scott and the Kansas City area and planned improvements south of Arma to the Oklahoma state line.
Flood Control and Stormwater Runoff	Participants noted that the area on the east side of US 69, from around 3rd Street north to the Marmaton River frequently floods during heavy rain events. These floods could affect a potential public art project proposed in the area beneath and adjacent to the Wall Street interchange. Incorporating retention ponds could help alleviate this problem.
Skate Park	The study team was notified that a Skate Park Committee is currently seeking a location for a new skate park. They suggested that a skate park be incorporated into the Greenway park plan.
Zoning Around the Highway Corridor	Interest was expressed in the future zoning recommended along the highway corridor. Although this comment was primarily directed towards the zoning along a bypass alignment, the impacts along the south end of Fort Scott were also identified.
Pedestrian Accommodations	The concepts developed along the US 69 corridor and throughout the community should address the lack of pedestrian facilities, such as trails and continuous sections of sidewalk.
Railroad Traffic Impacts	The amount of train traffic through Fort Scott tends to divide the community. The only grade separation is at 3rd Street, which has low vertical clearance and is prone to flooding.
Train Horn Noise	The sound level of train horns through town is disruptive to homeowners and businesses. Particular concern was expressed about guests at the local hotels near the crossings
Downtown Attractions	Concepts presented for the downtown area attracted considerable interest and support. These projects were designed to provide more reasons for residents and travelers to visit and patronize downtown businesses.



Chapter 4

Existing Conditions - Transportation Environment

The US 69 Corridor within the study area is comprised of three distinct segments; an urban corridor, a mixed-use corridor and a rural corridor.

DESCRIPTION OF US 69 SEGMENTS

The following sections briefly describe the roadway, access and land use characteristics within each segment. The limits of each segment are illustrated in **Figure 4.1.**

Urban Corridor - US Highway 54 to South National Avenue. This segment is a four-lane divided roadway with no direct driveway access along the entire 2.5 mile length. There are three grade separations on US 69, including interchanges with US 54 (west) and Wall Street (US 54 east). A grade separation is also provided with East National Avenue. The most significant attributes of this segment are the lack of direct driveway access to the highway and the limited number of intersections (three signalized intersections are provided at 3rd, 6th and 12th Streets), which helps to provide a safe transition from the rural freeway section to the urban environment. Speed limits decrease from 65 mph north of Wall Street to 50 mph along the signalized segment from 3rd Street to National Avenue.

Mixed Use Corridor - National Avenue to Jayhawk Road. The northern portion of this segment, from South National Avenue to 23rd Street, is a four-lane undivided cross section with multiple driveways and cross street intersections. This segment is a highly developed commercial corridor and lacks provisions for left turns and pedestrian and bicycle movements along the roadway. The speed limit is reduced to 30 mph along this segment of US 69.

The southern segment, from 23rd Street to Jayhawk Road, is a five-lane divided cross section with access control, providing a minimum of 300' between driveways and cross street intersections. This segment is also a highly developed commercial corridor, however, it generally meets KDOT access spacing criteria. The speed limits transition from 30

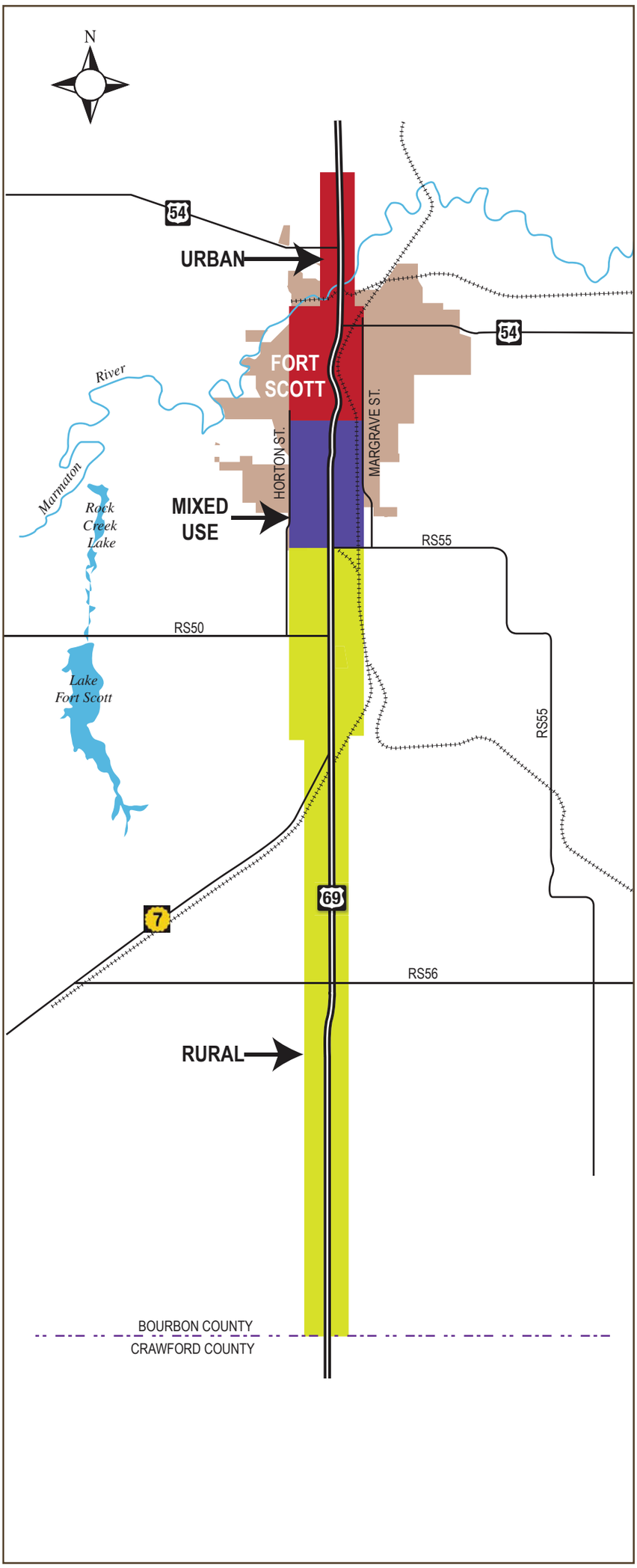


Figure 4.1 US Highway 69 Context Based Segments

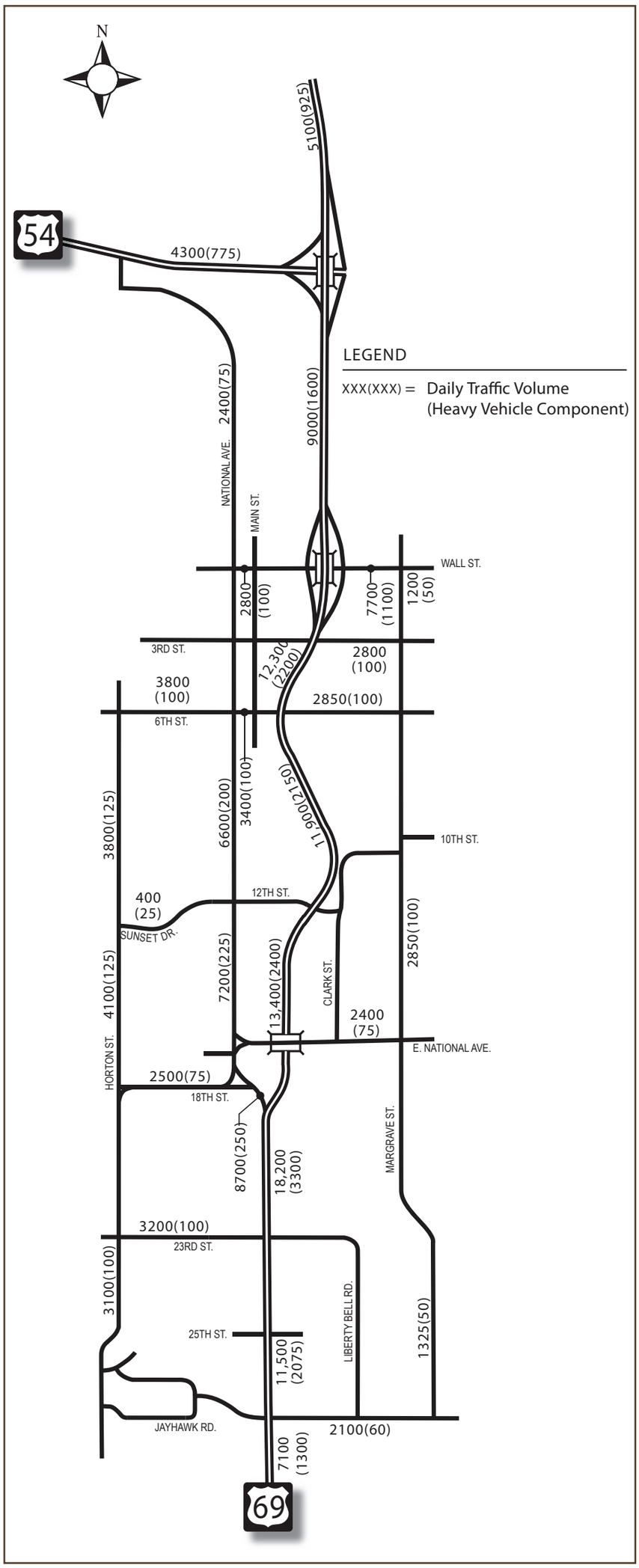


Figure 4.2 2006 Average Daily Traffic Volumes (most recent count)

mph near 23rd Street up to 50 mph near Jayhawk Road.

Rural Corridor - Jayhawk Road to Bourbon/Crawford County Line. This portion of the corridor, located just south of the city limits, is a four-lane divided roadway from Jayhawk Road through the interchange with K-7. The adjacent property is comprised of larger frontage lots, with access limited to approximately ¼ mile spacing. This section was constructed to expressway standards, providing at-grade intersections and driveways. The speed limit increases to 65 mph along this segment of US 69.

The southernmost portion of the corridor, from the interchange with K-7 to the Crawford County line is a two-lane rural cross section, with primarily agricultural land use and very few access points, primarily at ½ mile intervals and county roads. Right-of-way along this segment has been purchased to accommodate the widening to a four-lane expressway section. The speed limit along this segment is also posted at 65 mph.

2009 TRAFFIC VOLUMES

Average Daily Traffic and Truck Volumes

Historic Average Daily Traffic (ADT) counts were provided by KDOT within the study area. The most recent ADT counts for Fort Scott were conducted in July and August of 2006, as shown in **Figure 4.2**, with seasonal and axle (truck) factors applied.

2009 PM Peak Hour Volumes

Afternoon peak period turning movement counts were conducted in January 2009 specifically for this project. The counts were conducted at the intersections shown on **Figure 4.3** between the hours of 3:15 to 5:15 PM at 21 study intersections located within the study area. The counts were compiled, and the system-wide PM peak hours were established as 4:15 to 5:15 PM. Although these time periods represent the highest overall traffic volumes on the system including the mainline US 69 volumes, individual study intersections may have slightly different peak hours. The system-wide PM peak hour turning movements at the study intersections are shown in **Appendix A** in **Figure A.1**.

The peak hour turning movement counts are critical to conducting an operational analysis of the street and highway network. The initial review of existing turning movements reveals only two locations where individual turning movements could be considered high enough to warrant special consideration.

At the intersection of US 69 with National Avenue, the northbound left turn was recorded at 282 vehicles in the PM peak hour. The peak hour volume of the complimentary right turn from southbound National Avenue onto US 69 was 218 vehicles per hour (vph).

The other intersection with relatively high turning movement counts is US 69 with 25th Street (Walmart entrance). The eastbound left turn from 25th Street onto US 69 was observed to be 204 vph, while the complimentary southbound right turn movement from US 69 to 25th Street was recorded at 200 vph. These heavy turning movements have a significant impact on the overall intersection operation and need to be considered in the evaluation of traffic operations and vehicle storage lengths.

In addition to these locations, several other movements are approaching levels where exclusive turn lanes should be considered in future planning. These include the northbound right turns from US 69 at 12th Street and 3rd Street. Vehicles decelerating at these locations to negotiate a right turn interfere with the smooth flow of traffic and progression on mainline highway traffic. This is particularly important on highways such as US 69 that contain high percentages of heavy trucks, which require considerable lengths to decelerate and accelerate back up to their operating speeds when impeded by slower moving vehicles.

Another intersection on US 69 worthy of continued evaluation is at 23rd Street. The eastbound and westbound left turn volumes from 23rd Street onto US 69 are approaching a level during the 2009 peak hours where separate left turn lanes may be warranted.

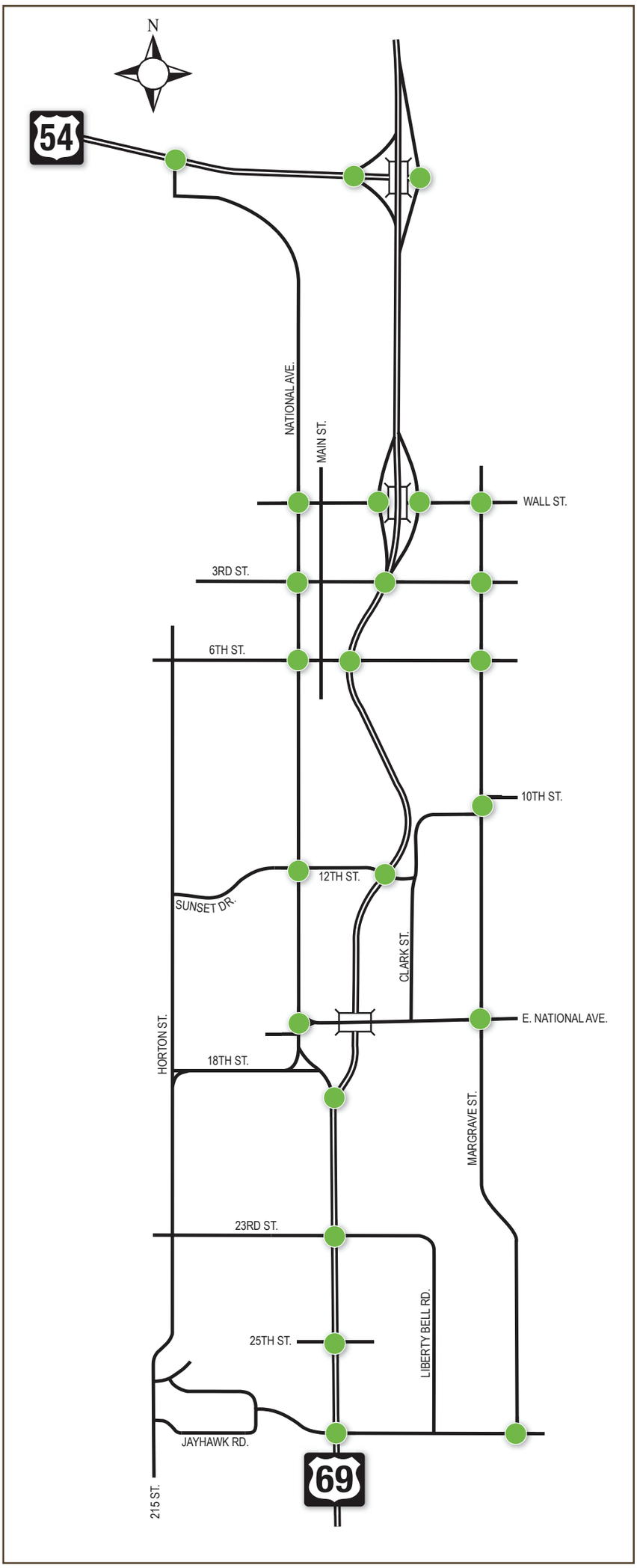


Figure 4.3 Turning Movement Count Locations

Highway Capacity Manual Level of Service Definitions

Level of Service A
Free-flow operations are experienced where the speed of an individual vehicle is not greatly influenced by others in the traffic stream. Speeds are not affected by flow; lane changes as well as merging and diverging movements are made relatively easily.

Level of Service B
Drivers begin to respond to other vehicles in the traffic stream. Speeds remain at free-flow levels, but drivers must be more vigilant when making lane changes, merging and diverging movements.

Level of Service C
The presence of other vehicles begins to restrict maneuverability in the traffic stream. Average speeds remain at free-flow levels, but drivers need to adjust their course to find gaps to make lane changes, merging and diverging movements. Any significant lane blockage could lead to breakdown and the formation of queues.

Level of Service D
Average speeds begin to decline with increasing traffic flow, and density deteriorates more quickly. Maneuvering within the traffic stream is now quite difficult, and drivers need to search for gaps to make lane changes, merging and diverging movements. Minor lane disruptions lead to breakdown and the formation of queues unless removed quickly.

Level of Service E
This is the practical density limit for multilane operations, and defines roadway capacity. No useable gaps to make lane changes, merging and diverging movements are available in the traffic stream, and drivers must rely on others to give way. Even the slightest disruptions lead to breakdown with the rapid formation of queues behind the incident.

Level of Service F
The condition where a queue has formed behind a point of breakdown or disruption. Travel demand exceeds roadway capacity. Traffic shuffles through queues; traffic flow may stop completely.

Table 4.1 **Level of Service (LOS) Criteria**

Level of Service	Average Control Delay per Vehicle (sec/veh)		Density (pc/mi/ln)
	Signalized Intersections	Stop Sign Controlled Intersections	Multilane Highways
A	≤ 10	≤ 10	≤ 11
B	> 10 to 20	> 10 to 15	> 11 to 18
C	> 20 to 35	> 15 to 25	> 18 to 26
D	> 35 to 55	> 25 to 35	> 26 to 35
E	> 55 to 80	> 35 to 50	> 35 to 40
F	> 80	> 50	> 40

2009 OPERATIONAL ANALYSIS

Traffic operations were analyzed for the study intersections using procedures documented in the **Highway Capacity Manual,** Transportation Research Board Special Report 209, 2000. From the analyses, a key measure or "level of service" rating of the traffic operational condition was obtained. In general, level of service (LOS) is a qualitative assessment of traffic operational conditions within a traffic stream in terms of the average stopped delay per vehicle at a controlled intersection. Levels of service are described by a letter designation of A through F, with LOS A representing essentially uninterrupted flow, and LOS F representing a breakdown of traffic flow with noticeable congestion and delay.

Table 4.2 **2009 US 69 Mainline Operations Analysis**

Segment	Level of Service (LOS)	
	2 Lane Highway	4 Lane Highway
US 54 to Wall Street	--	A
Jayhawk Road to K-7	--	A
K-7 to Crawford County Line	C	--

Signalized intersection capacity analyses result in an overall level of service, representative of all movements through the intersection. Unsignalized, or stop sign controlled, intersection capacity analyses produce LOS results for each movement which must yield to conflicting traffic at the intersection.

Level of Service is also used to describe traffic operations on freeways and divided highways. On these multilane facilities, LOS is defined by density in passenger cars per mile per lane (pc/mi/ln). **Table 4.1** summarizes LOS criteria for both signalized and unsignalized (stop sign controlled) intersections, as well as multilane highways.

US 69 Mainline Operations Analysis

The mainline analysis for the rural segments of US 69 was conducted using the Highway Capacity Software (HCS). All of the 2009 US 69 mainline segments in the study area outside of Fort Scott currently meet the minimum operations goal of LOS C or better. The four-lane divided mainline segments from US 54 to Wall Street and Jayhawk Road to K-7, currently operate at LOS A. The two-lane undivided segment between K-7 and the Crawford County Line operates at LOS C. **Table 4.2** shows the mainline LOS for 2009.

US 69 Interchange Analysis

The HCS software was used to conduct the merge/diverge analysis at the US 69 ramps with Wall Street and at the northern interchange with US 54. In the PM peak hour, all of the US 69 ramps currently operate at LOS A.

Although the southbound Wall Street on-ramp merge with US 69 currently operates at LOS A in the PM peak hour, there are some operational concerns at this location. This is due to the limited distance between the beginning of the merge area and the adjacent signalized intersection with 3rd Street. The grades on the ramp and the mainline, in conjunction with the merging movement and adjacent signal, creates a potential hazardous condition. Consideration should be given to prohibiting southbound right turns at this location or extending the merge through the intersection, dropping the third southbound lane south of 3rd Street.

Signalized / Stop Sign Controlled Intersection Analysis

Traffic operations at the critical study intersections controlled by either traffic signals or stop signs were analyzed utilizing the Synchro traffic analysis software program. **Figure A.2** in **Appendix A** illustrates the lane geometry, traffic control, and levels of service for 2009 traffic conditions. All of the study intersections currently operate at acceptable levels of service in the PM peak hour. All of the signalized intersections currently operate at LOS B or better, and the critical movements at the unsignalized intersections all operate at LOS C or better. Capacity analysis worksheets for 2009 traffic conditions scenario are included in the **Technical Appendix.**

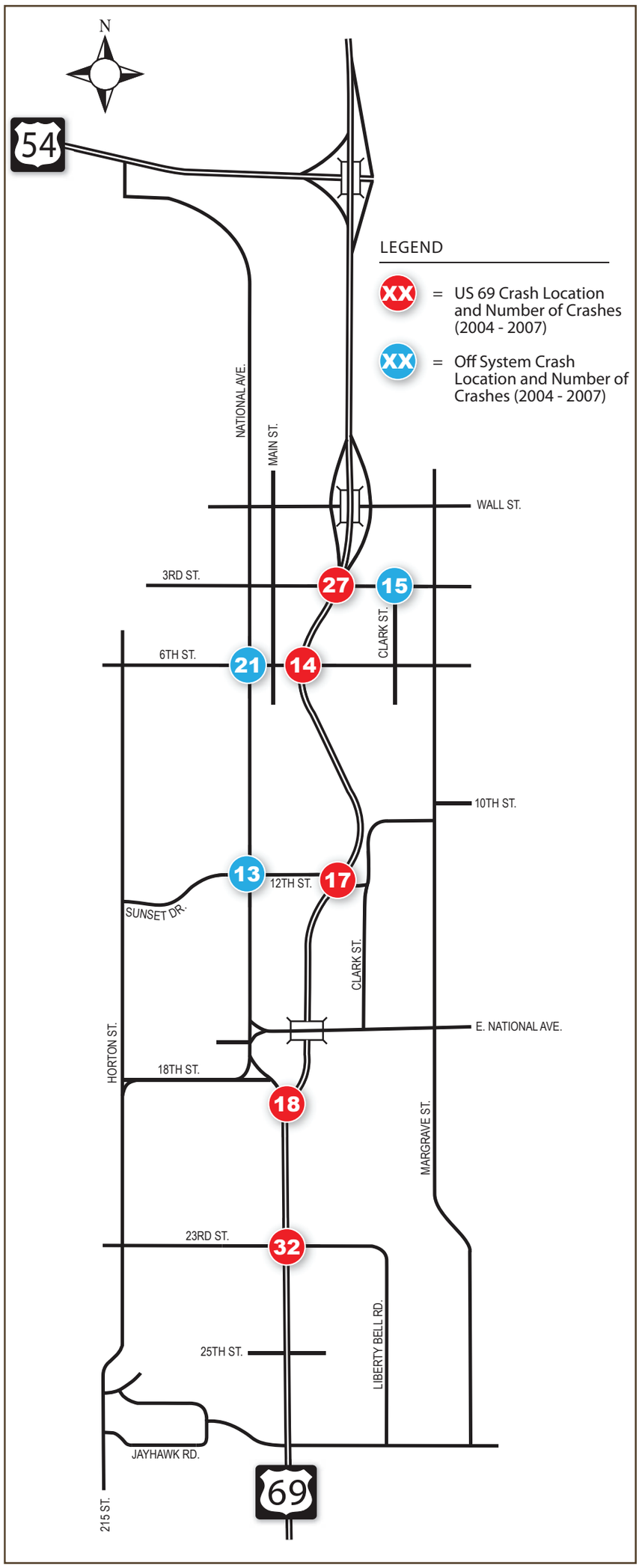


Figure 4.4 High Crash Locations (2004-2007)

CRASH HISTORY AND ANALYSIS

The Kansas Department of Transportation and the City of Fort Scott furnished copies of the crash reports for the critical intersections within the US 69 Corridor study area from 2004 to 2007. The crashes were first reviewed to determine locations having a significant history of crashes, with the results of this compilation depicted in **Figure A.3** in **Appendix A**. These reports were then utilized to compile collision diagrams for each intersection, which are included in the **Technical Appendix**. Several locations, each experiencing more than three crashes per year, warrant further analysis to determine potential countermeasures to reduce the crash experience. These include the following locations along US 69, which are graphically depicted in **Figure 4.4**:

- US 69 and 3rd Street – 27 crashes
- US 69 and 6th Street – 14 crashes
- US 69 and 12th Street – 17 crashes
- US 69 and South National Avenue – 18 crashes
- US 69 and 23rd Street – 32 crashes

Crash data from 2004 to 2007 for the study intersections along the US 69 corridor are shown in **Table 4.3**. The data was broken out by severity into three categories: property damage only (PDO), injuries, and fatalities. 2009 ADT information was utilized to determine the crash rate per million entering vehicles (MEV) at each study intersection.

The values shown in **Table 4.3** were compared to the Kansas statewide average crash rates. KDOT has identified the statewide average crash rate as 5.00 crashes per Ten Million Entering Vehicles (TMEV) for rural intersections and 10.00 crashes per TMEV for urban intersections. All of the intersections identified in **Table 4.3** are considered urban intersections. Two intersections in the study area along US 69 exceed the statewide average; 3rd Street and 23rd Street. This indicates that safety improvements at these two intersections should be considered as higher priority projects.

3rd Street

At US 69 and 3rd Street, a total of 15 of the 27 crashes involved southbound vehicles. The driver comments on several of the crash reports involving southbound signal violations or rear end collisions indicated that they thought they were on a highway and did not expect to encounter a traffic signal. The approach for southbound traffic at the intersection is further complicated by the merge for the on-ramp from Wall Street onto US 69. The primary measure for correcting this type of pattern would be to install signage with beacons interconnected with the traffic signal or with queue detection. A standard "Signal Ahead" sign is provided for southbound traffic. A second "Signal

Existing Signal Ahead sign with flashing beacon on northbound approach to 3rd Street.

View of US 69 looking north from 6th Street pedestrian overpass.

Table 4.3 **US 69 Crash Data by Intersection (2004-2007)**

	US-69 & Jayhawk Rd.	US-69 & 25th St.	US-69 & 24th St.	US-69 & 23rd St.	US-69 & 20th St.	US-69 & 19th St.	US-69 & S. National Ave.	US-69 & 12th St.	US-69 & 6th St.	US-69 & 3rd St
Fatal Crashes	0	0	0	0	0	0	0	0	0	0
Injury Crashes	0	0	0	5	1	0	1	4	5	1
PDO Crashes	5	3	1	27	9	9	17	13	9	26
Total Crashes	5	3	1	32	10	9	18	17	14	27
Fatalities per Ten Million Entering Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Injuries per Ten Million Entering Vehicles	0.00	0.00	0.00	1.65	0.37	0.00	0.31	1.75	2.29	0.50
Total per Ten Million Entering Vehicles	2.53	1.64	0.55	10.58*	3.67	3.22	5.50	7.44	6.40	13.40*

*Rate exceeds statewide average

Ahead" sign, but with a flashing yellow beacon, is provided closer to the intersection. However, the sign and beacon are located on the right side of the on ramp from Wall Street, a considerable distance from the southbound through lanes on US 69. For northbound traffic, a "Signal Ahead" sign with a beacon is also provided, however, the beacon may be located too close to the intersection to provide adequate advanced warning to the driver. The intersection should also be reviewed for the length of the southbound merge from Wall Street onto US 69 and extended through the intersection. A northbound right turn lane should also be considered to separate slow moving local traffic from of the through traffic mix.

6th Street

At US 69 and 6th Street, a total of 9 of the 14 crashes again involved southbound vehicles. Due to the curvilinear alignment and visual obstruction provided by the grade separation overpass, an advance warning sign with beacon countermeasure should be considered for southbound traffic at this location. For the northbound direction, the advanced signal sign is already provided, along with a second sign and a flashing beacon. Interconnected traffic signals would also improve progression of traffic through this section of US 69. Northbound and southbound right turn lanes should also be considered to remove slowing moving local traffic from the through traffic mix.

12th Street

At US 69 and 12th Street, the crashes are evenly divided between southbound and northbound traffic on US 69. For both directions approaching the intersection with 12th Street, a "Signal Ahead" sign is provided, followed by a "Be Prepared to Stop" sign located closer to the intersection. Consideration should be given to providing similar advance warning signage at all three of these intersections. Interconnected traffic signals and the construction of northbound and southbound right turn lanes would also help to improve traffic flow and progression through this intersection.

South National Avenue

At the intersection of US 69 with South National Avenue, the crashes are predominately rear end collisions, with the greatest number on the southeast bound leg of South National Avenue with six crashes. These crashes appear to involve drivers looking over their shoulder for southbound traffic on US 69, and striking a vehicle in front of them. Several of the crashes also involved turning maneuvers or were right angle types. The installation of a traffic signal at this location would help alleviate these types of crashes. **The Manual of Uniform Traffic Control Devices (MUTCD)** traffic signal warrants were reviewed at this intersection and it was determined that the warrants are satisfied based on existing traffic volumes. MUTCD traffic signal warrants can be found in the **Technical Appendix.**

23rd Street

At the intersection of US 69 with 23rd Street, the crashes are primarily right angle and rear end types, typical of areas experiencing congestion. Access control at the intersection should be addressed in conjunction with the proposed land use plan which suggests driveway consolidations and the construction of a raised median on the US 69 approaches to the intersection.

Off-System Locations

Additional urban intersections within the study area but outside of the US 69 corridor were also identified as high crash locations, as shown in **Table 4.4.** Since these intersections were off-system, some of the ADT information was estimated. A more detailed crash analysis is recommended at these locations to determine if there are geometric or other safety improvements that can be implemented to help reduce the number of crashes. These intersections include:

1. 6th Street and South National Avenue
2. 12th Street and South National Avenue
3. 3rd Street and the intersections with Clark Street located on each side of the BNSF underpass

All three of these intersections identified in **Table 4.4** exceed the statewide average for crash rates. This indicates that safety improvements at these intersections should also be considered as higher priority projects.

Highway Segment Analysis

Crash data along US 69 was also analyzed by highway segment. The segments were identified by lane class, and are shown in **Table 4.5**. It was observed that several of the high crash intersections were clustered in the segment of US 69 between 23rd Street and South National Avenue. The fatal and injury crash data were calculated to determine the crash rate per 100 Million Vehicle Miles Traveled (100MVMT). The total crash data for this segment was analyzed to determine the crash rate per Million Vehicle Miles Traveled (MVMT).

The values shown in **Table 4.5** were compared to the Kansas statewide average crash rates. For a two-lane undivided rural roadway, the statewide average total crash rate is 1.143 per MVMT. A four-lane divided rural roadway, similar in nature to the section from K-7 to Jayhawk Road, the statewide aver-

Existing Signal Ahead sign with flashing beacon on northbound approach to 6th Street.

age total crash rate is 0.955 per MVMT. For a four-lane divided urban roadway, similar in nature to the section from Wall Street to South National Avenue, the statewide average crash rate is 2.059 per MVMT. A four-lane undivided urban street has a statewide average crash rate of 4.883 per MVMT, similar to the section from South National Avenue to Jayhawk Road. The northern three segments along US 69 within the City Limits of Fort Scott, from Jayhawk Road to Wall Street all exceed the statewide averages for crash rates. This indicates that safety improvements installed on these segments should be considered as higher priority projects.

Table 4.4 **Off-System Crash Data by Intersection (2004-2007)**

	National Ave & 12th St.	National Ave & 6th St.	Clark St & 3rd St
Fatal Crashes	0	0	0
Injury Crashes	1	2	2
PDO Crashes	12	19	13
Total Crashes	13	21	15
Fatalities per Ten Million Entering Vehicles	0.00	0.00	0.00
Injuries per Ten Million Entering Vehicles	0.83	1.34	2.85
Total per Ten Million Entering Vehicles	10.81*	14.08*	21.40*

*Rate exceeds statewide average

Table 4.5 **US 69 Crash Data by Segment (2004-2007)**

	County Line to K-7	K-7 to Jayhawk Rd.	Jayhawk Rd. to 24th St.	23rd St. to S. National Ave.	17th St. to Wall St.
Lane Class	2-Lane Undivided Rural	4-Lane Divided Rural	4-Lane Divided Urban	4-Lane Undivided Urban	4-Lane Divided Urban
Fatal Crashes	0	0	0	0	0
Injury Crashes	0	0	0	7	10
PDO Crashes	3	3	9	62	54
Total Crashes	3	3	9	69	64
Segment Length (miles)	6.60	2.50	0.45	0.52	1.90
2009 Segment ADT (vpd)	4,920	7,100	11,500	18,200	12,000
Fatalities per 100 Million Vehicle Miles Traveled	0.000	0.000	0.000	0.000	0.000
Injuries per 100 Million Vehicle Miles Traveled	0.000	0.000	0.000	2.026	1.202
Total per 1 Million Vehicle Miles Traveled	0.253	0.463	4.765*	17.948*	6.489*

*Rate exceeds statewide average

South National Avenue intersection with US 69.

US 69 north of 23rd Street.

PEDESTRIAN AND BICYCLE ACCESS

Active transportation, including pedestrian and bicycle modes, should be part of the access network for both the US 69 study area and the city of Fort Scott as a whole. The relatively short distances from most of Fort Scott's neighborhoods to major community destinations such as the Fort Scott National Historic Site, Downtown, major business districts, schools, parks and recreational facilities, and the community center; and Fort Scott's reasonable grades, mild climate, and street grid create conditions favorable for pedestrian and bicycle transportation.

Pedestrian and bicycle facilities are often associated with recreation benefits, and these are fundamentally important to both community quality and individual health. However, while recreation is important, the key focus of this plan is on transportation – the diversion of unnecessary automobile trips to transportation modes that use no fuel, emit no pollutants, take little road area, and incorporate physical activity into people's routine lives. A major focus of this approach is on trips under two to three miles. Studies indicate that about 40% of all trips are shorter than two miles and that 90% of all these trips are made by automobile. If Fort Scott's transportation system encourages pedestrian and bicycle use for a greater number of these short trips, the entire transportation system will benefit.

In addition, increasing national emphasis is being placed on the concept of "complete streets." Complete streets are transportation corridors that provide safe and comfortable accommodations for motor vehicles, transit, and pedestrian and bicycle modes within the same corridor. Some facilities are suitable for complete street treatment. However, parallel streets, pathways, or trails can provide access to the same destinations served by roadways that do not adapt well to multi-modal travel.

This section evaluates the ability of the study area's existing network to accommodate pedestrian and bicycle transportation.

Multi-Use Pathways

Multi-use pathways have been at the center of pedestrian and bicycle systems for many communities. These facilities often are located on their own rights-of-way, utilizing streams, abandoned or low-use railroads, or utility corridors. Pathways may also be part of street or highway rights-of-way; such facilities are often referred to as "sidepaths," and combine characteristics of trails and sidewalks. The weak point of sidewalks are conflicts with turning traffic at intersections. Sidepaths are safer and more appropriate along roads with a limited number of motor vehicle conflicts, such as driveways and intersecting streets.

Fort Scott has not to date developed multi-use pathways, with the exception of internal trails in parks or the community college campus. Plans for the Marmaton Riverfront include a trail that would eventually link the Fort Scott National Historic Site to Gunn Park. Opportunities for pathway development include:

- Parks and the Buck Run drainageway parallel to US 69 between the river and the South National intersection.
- Excess public right-of-way along the South Main (US 69 south) corridor.
- Abandoned or lightly used railroad right-of-way parallel to and north of Wall Street, under US 69.

Sidewalks

Fort Scott's pedestrian network is made up of its grid of sidewalks, and deteriorated or absent segments of walks break the continuity and safety of the system. **Figure 4.5** illustrates this network by indicating the presence and condition of sidewalks. Major findings include the following:

- The west side sidewalk system provides a relatively continuous grid north of 12th Street, but has poor coverage south of 12th. On the east side, sidewalk coverage is virtually absent south of 9th Street.
- In general, the system is most continuous and in best condition in and south of the Downtown district, and in poorest condition immediately west of Downtown. On the east side, sidewalks along Wall Street and in the neighborhood between 6th and 9th Streets are in good condition; other areas are less satisfactory.

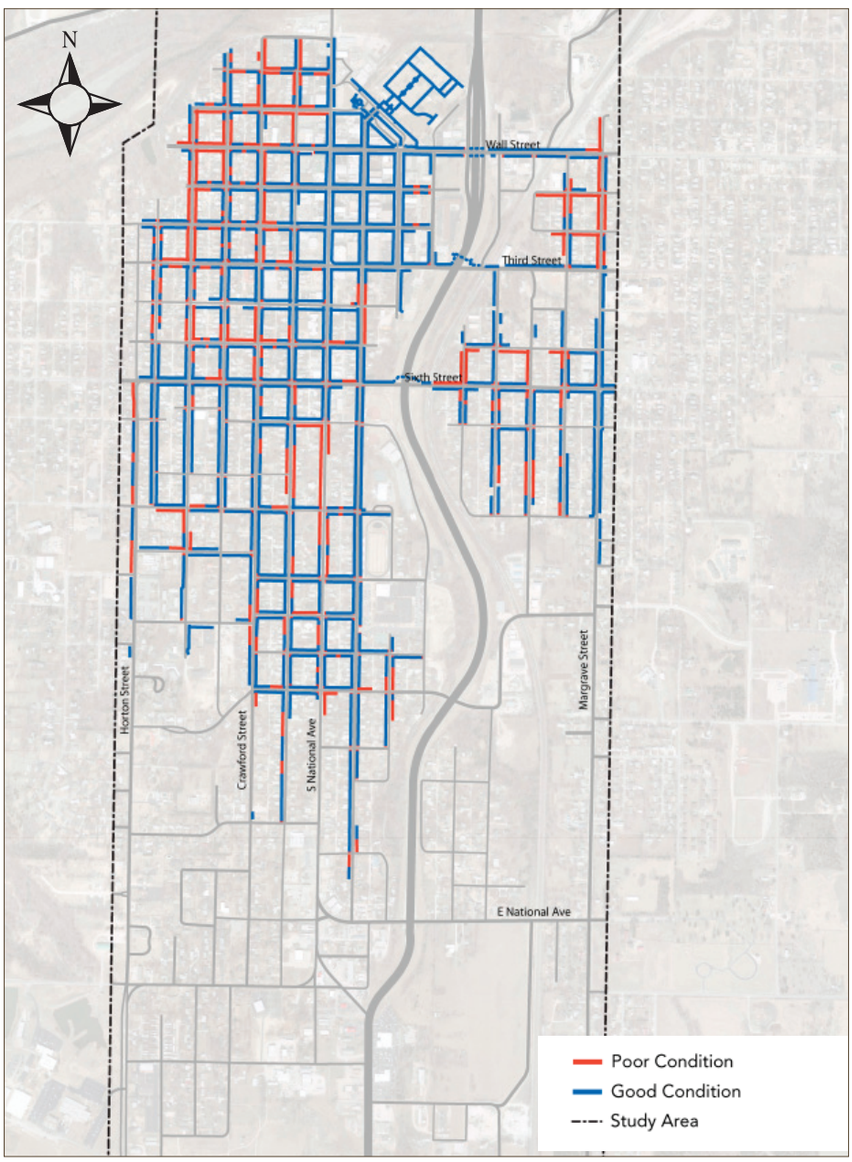


Figure 4.5 Condition of Sidewalks

- Of major north-south streets, Main Street has the best condition and continuity, while National Avenue, an important corridor, has significant gaps and segments in poor condition. Horton and Margrave, important streets that mark the edge of the study area, have very incomplete sidewalk coverage. Because Horton serves multi-family development and is the major street leading to the Fort Scott Community College campus, this absence of sidewalks is a particular problem.
- On the east side, 3rd and 6th Streets, both of which lead to pedestrian overpasses over US 69, do not have fully continuous sidewalks. Of the two, 3rd Street provides the best continuity on its north side.
- Sidewalks or other pedestrian facilities are almost entirely absent in the southern part of the city, except for limited segments on Main and Judson Streets. The South US 69 corridor lacks pedestrian facilities.

Pedestrian Overpass at 3rd Street

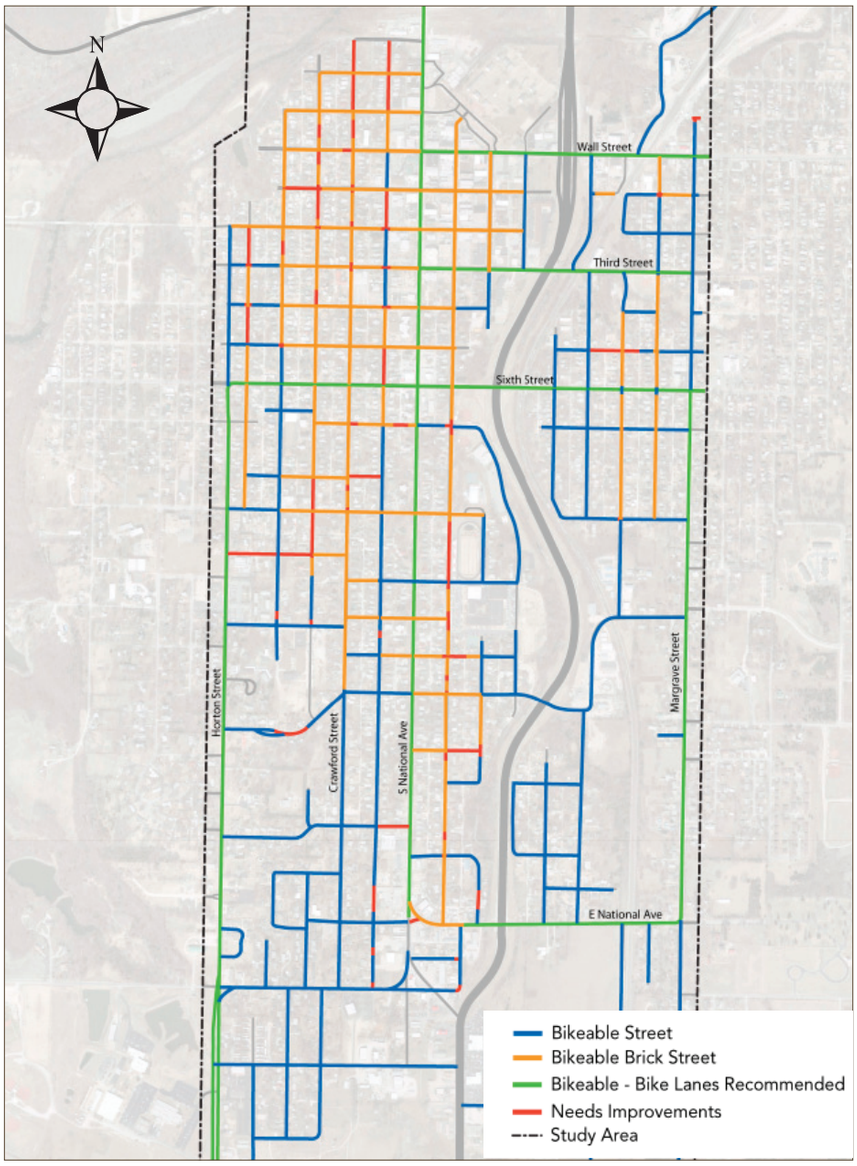


Figure 4.6 Bicycle Suitability

Pedestrian Overpasses

Third and Sixth Streets have similar pedestrian overpasses over US 69, designed around cantilevered beams. Both bridges have complex ramping systems to achieve required clearance in limited space. The ramp grades may approach or exceed the Americans With Disabilities Act (ADA) limits and their convoluted form and narrow path make the structures less attractive to users. Third Street also includes an underpass under the BNSF, with a sidewalk on the north side.

Bicycle Access

The lack of off-street pathways means that the street system is Fort Scott's bicycle network. **Figure 4.6** assesses the city's streets for bicycle suitability.

Except for US 69 and East Wall Street, low to moderate traffic volumes throughout the city street make most streets suitable for bicyclists. Streets are classified as follows:

- "Bikeable streets" are typically low-volume local streets that are comfortable for most cyclists who are capable of on-street riding. Of these, Judson and Crawford provide the best north-south continuity. These streets do not require signage, pavement markings, or physical improvements for bicycle adaptation. The map also indicates "bikeable brick streets," low-volume streets paved with Fort Scott's signature brick pavers. While they are a less than smooth riding surface, brick streets also calm motor vehicle traffic. These local streets generally have stop sign controls at intersections with east-west cross streets.
- "Streets that need improvement" indicates paving surface deterioration or damage that should be repaired to provide a safe riding surface.
- "Bike lanes recommended" indicate higher volume streets that are satisfactory for experienced cyclists and provide direct access to important destinations. These streets could provide safer cycling environments with share-the-road signage and pavement markings such as bike lanes or sharrows, a marking new to the MUTCD indicating shared lanes. These streets range from 30 to 50 feet in curb-to-curb width, and exact treatment depends on pavement width and presence of on-street parking.

Multi-use pathway opportunities discussed on the previous page also could accommodate all types of bicyclists.

ENVIRONMENTAL CONSTRAINTS

Environmental features within any corridor can be viewed as either a constraint or an asset. While some features may be a potential constraint to development or corridor improvements, others may provide tremendous value that adds to the character and quality of the area. This study of the US 69 corridor did not require a detailed evaluation of environmental constraints that an investigation of new alignment would, but the existence of some environmental conditions may need to be considered during the design and construction of recommended improvements. Additionally, some environmental resources within the corridor are viewed as strong community assets that should be capitalized upon to help achieve the vision for this plan. A brief summary of the most important environmental considerations is provided below. **Figures A.4 and A.5** shown in **Appendix A** provide an overview of the environmental considerations in the study area.

Archeological, Cultural and Historic Resources

Within Bourbon County a total of 12 historic properties and historic districts are listed on the Kansas State Historical Society register. The newly designated Fort Scott Downtown Historic District, includes 86 buildings that contribute to the cultural value and identity of Downtown Fort Scott. These culturally valuable and identity driving resources provide essential definition for the character of Fort Scott and Bourbon County. By no means does this list provide a comprehensive review of all historically significant properties. Any roadway improvement proposed by this plan should only be undertaken after a detailed evaluation of all register-eligible historic properties as well. Additionally, nine sections within and adjacent to the corridor have the presence of known archeological sites. New developments should be careful to avoid disrupting the character of any historic district while attempting to enhance the cultural identity of the nationally significant fort, cemetery and other culturally relevant features. Archeological surveys should be conducted before acquiring any property.

Floodplains

The most physical environmental challenge to roadway improvements within the corridor is the 100-year floodplain and floodway boundaries, which parallel the existing US 69 roadway alignment on the north end of the corridor. Proposed improvements involve minor roadway widening adjacent to the floodplain and would require some amount of fill, which could potentially increase the 100-year flood elevations along the corridor by eliminating flood storage within the floodplain. Typical strategies to compensate for floodplain impacts include compensatory storage for the amount of fill placed within the floodplain. Compensatory storage promotes offsetting floodplain impacts by installing storage areas that detain floodwaters for short periods of time. It is not uncommon for communities to design park areas and trails inside the floodplain. Approval of a floodplain permit will be required whenever improvements are proposed within the boundary of the floodplain.

Wetlands

Wetlands are another environmental feature that is both a development constraint and community asset. Among other benefits, wetlands support recreational opportunities, improve water quality, and help control flooding. Protection of wetlands is regulated at both the federal and state levels of government. Projects that impact wetlands under the jurisdiction of these governmental agencies will require a permit and likely mitigation. A detailed wetland delineation should be conducted early when a project is considered for design so that mitigation strategies can be considered early in the design process in hopes to avoid possible impacts.

Waters of the State

Managing projects that could impact the beneficial use of waters of the state is required. Projects will have to obtain special permits and in some cases mitigate impacts. There are three standards that could directly impact projects proposed within the corridor. The Marmaton River is designated as a Special Aquatic Life Use resource because of the existence of threatened and/or endangered wildlife species. Mill Creek, Moores Branch, Buck Run, Walnut Creek, and Dry Wood Creek are Expected Aquatic Life Use (E) waters. This designation requires three or more celled culverts to have the center cell lowered to concentrate low flows for the passage of aquatic organisms. Finally, the Kansas Department of Agriculture requires a 50 foot vegetative strip along both sides of any new channels.

Stormwater

Incremental changes to the landscape and built environments work to compound problems related to stormwater that must be considered by each project. Adding impervious surfaces such as roads, sidewalks, parking lots and roof tops causes more stormwater to run into receiving waters. This compounds

Fort Scott National Historic Site

Fort Scott National Cemetery

flooding problems and impacts stream channels. Once a watershed reaches 30% impervious cover, significant degradation begins to occur to stream channels and aquatic habitats because of large amounts of stormwater flowing through the channel.

Stormwater runoff also impacts receiving waters by carrying pollutants that wash off the landscape. Urban pollutants such as sediment, nutrients, bacteria, and hydrocarbons that discharge with stormwater all reduce the beneficial characteristics of local receiving waters in some way. The quality of receiving waters such as Buck Run, Marmaton River and Lake Fort Scott is protected and all projects must avoid causing water quality impacts.

Best practices to protect water quality can be employed to account for increased stormwater runoff. Developments and projects can incorporate designs with low-impacts to receiving water. These designs include tools to capture additional water flows and treat them for water quality. Common low-impact practices include bioretention swales or rain gardens, infiltration, and stormwater detention. At a minimum, all projects that disturb soil should be required to rigorously prevent soil discharge from construction sites. A state permit will be required for all activities disturbing greater than one acre of soil.

Parks

Area parks within and surrounding the study area are part of the community fabric. Besides designated parks such as Bridal Veil, Fisher, and Gunn Parks, designated historic properties and additional recreational features throughout town combine to provide areas for education, social interactions, civic events, historic interpretation, and physical fitness. These resources are essential to the well-being of local residents. Projects should always seek to build connecting links throughout town to better integrate these important features and communicate their existence to residents and visitors alike.

Wildlife

The mature oak woodlands and free flowing Marmaton River and Mill Creek within the study area provide Designated Critical Habitat for two species. While all wildlife impacts should be considered during each project, the Broadhead skink and the Hornyhead chub habitat is protected and an Action Permit may be required if that habitat will be impacted.

Environmentally Impacted Properties

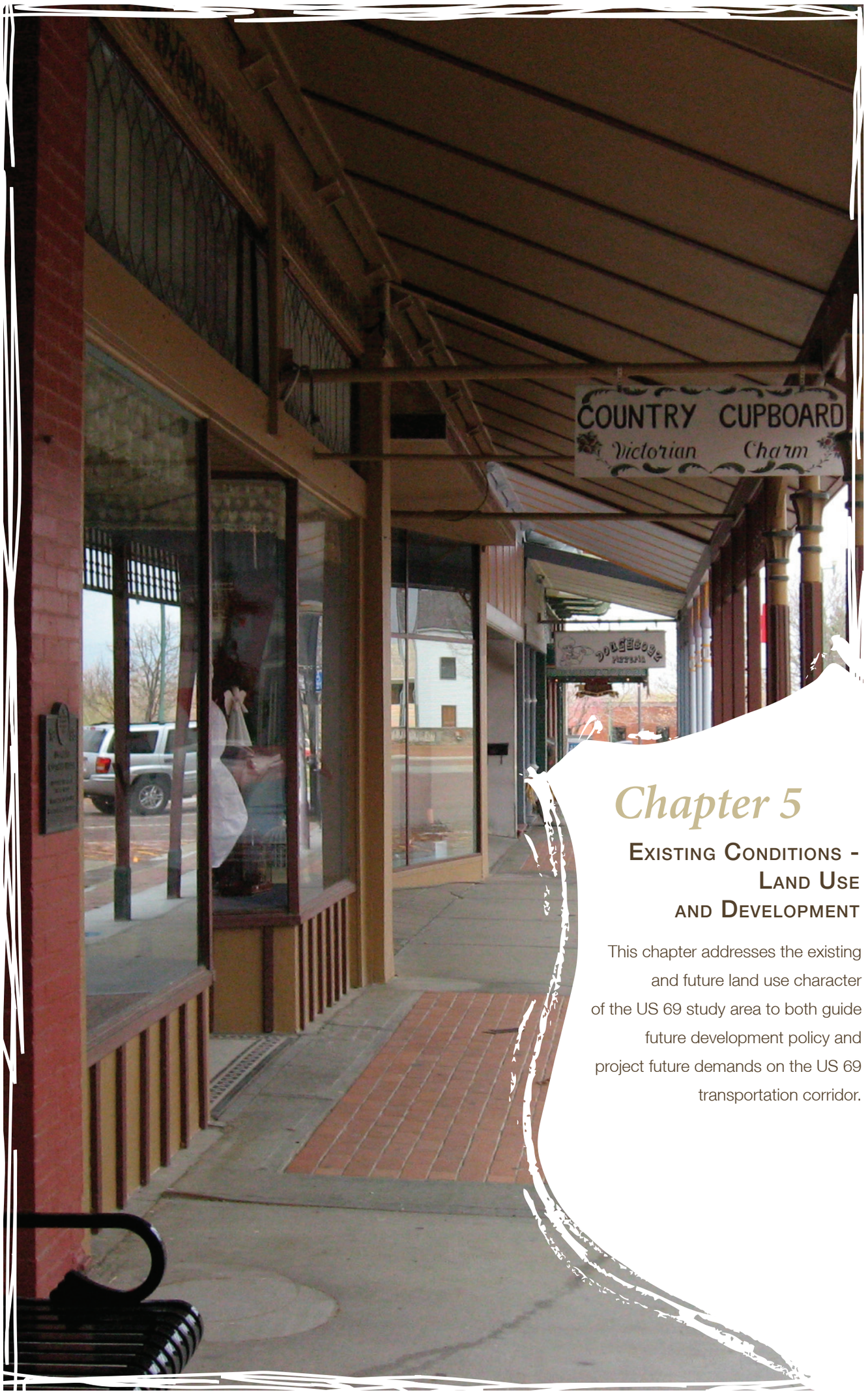
Some properties within the study area may have contained uses that caused negative environmental impacts. These properties are often, but not always, called "brownfields" because their redevelopment is more difficult and more expensive than "greenfields" located on the edges of town. Avoiding redevelopment or reuse of brownfields has the tendency to promote less dense development on the edge of town, higher amounts of impervious cover, and reduced property values around the brownfield area. A review of available resources identified only a few environmentally impacted properties within the study area. Each roadway improvement project should account for uses in the area that could have caused environmental impacts.

Marmaton River

Fisher Park Ballfield

Stormwater drainage through Fisher Park

Buck Run



Chapter 5

Existing Conditions - Land Use and Development

This chapter addresses the existing and future land use character of the US 69 study area to both guide future development policy and project future demands on the US 69 transportation corridor.

LAND USE AND FUTURE DEVELOPMENT

The chapter includes two parts:

Part One examines existing land use in the city and the US 69 study area, and considers the contexts – urban, rural, and environmental – through which the highway passes. It also considers issues and opportunities presented by the corridor's context, and presents general principles for land use policy in the corridor.

Part Two includes a market analysis of the city to determine future demand for residential, commercial, and industrial/business uses within the city and its immediate surroundings. This analysis is then used to create a future land use scenario for the study area, relating development demand to land use principles presented in Part One.

PART ONE: EXISTING LAND USE AND DEVELOPMENT PATTERNS

US 69's adjacent land uses and development contexts influence current roadway performance and guide future transportation and development policy. This section examines:

- The amount of distribution of land used for urban purposes within the City of Fort Scott and the specific US 69 study area.
- Development contexts adjacent to US 69 and within the larger study area, considering both land use and the character of development and streets.
- Development issues, opportunities, and guiding strategies presented by the relationship between transportation and land use.

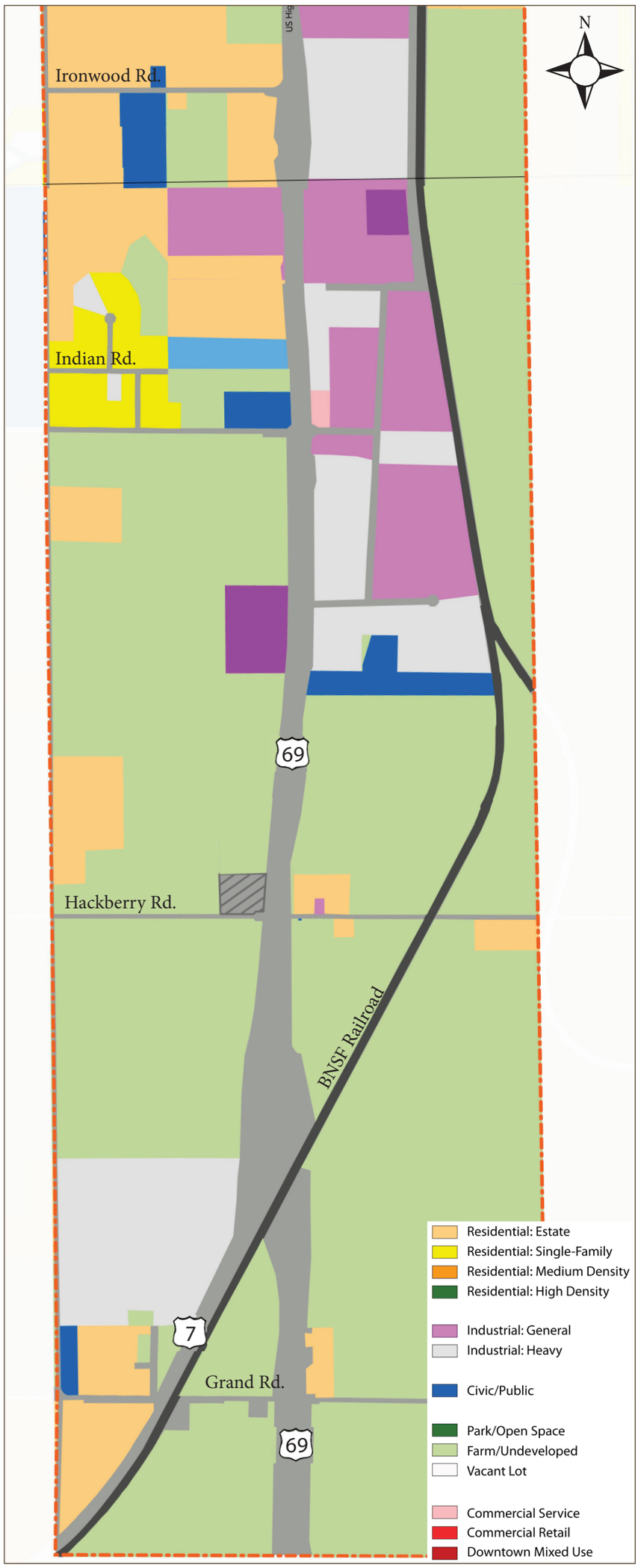


Figure 5.1 Existing Land Use within the Study Area (south)

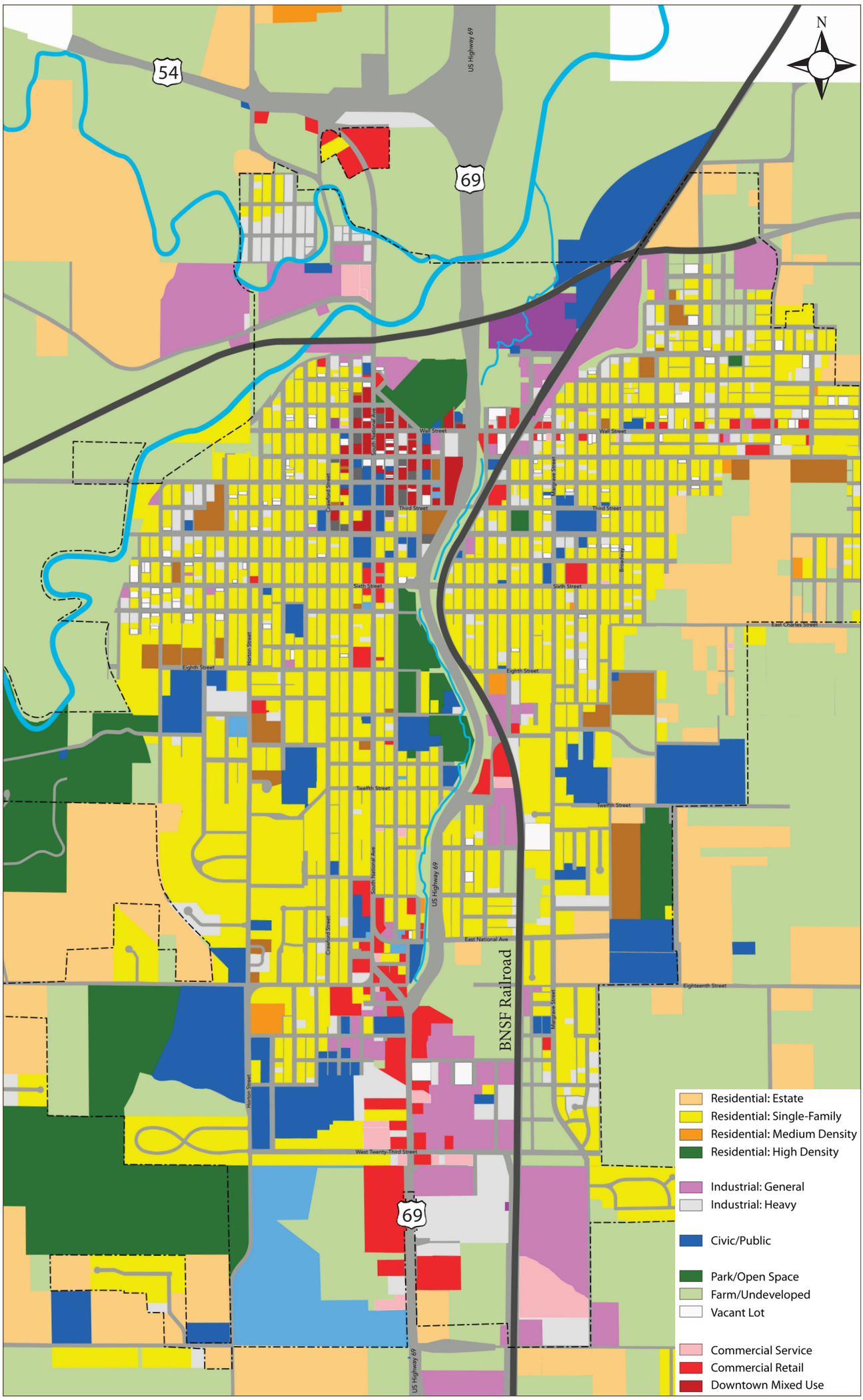


Figure 5.2 Existing Land Use with City of Fort Scott

Table 5.1 **Existing Land Use Inventory**

	Fort Scott City Limits	Study Area within City Limits	Complete Corridor from US 54 To K-7
Developed Land			
Residential	**1,006.5**	**403.3**	**560.5**
Single Family	849.5	382.3	432.4
Multi-Family	62.3	14.1	14.1
Mobile Home	10.0	6.9	6.9
Rural Residential	84.7	-	107.1
Commercial	**149.8**	**129.1**	**145.4**
General	22.8	19.5	22.8
Service	35.5	29.3	30.1
Retail	24.6	22.8	22.9
Restaurant/Entertainment	10.5	9.9	9.9
Office	37.6	28.8	40.9
Downtown Commercial	18.7	18.7	18.7
Civic	**504.0**	**205.1**	**272.0**
Health	84.4	82.6	92.6
General Civic	189.1	73.0	95.3
Government	2.8	2.8	14.5
Public Utility	19.1	2.6	25.6
Park	208.6	44.0	44.0
Industrial	**254.8**	**176.1**	**386.7**
General Industrial	45.0	44.0	138.9
Light Industrial	209.8	132.1	247.9
Parking	**4.9**	**4.9**	**4.9**
TOTAL DEVELOPED LAND	**1,920.1**	**918.6**	**1,369.6**
TOTAL TRANPORTATION ROW	**836.3**	**483.9**	**706.3**
Undeveloped/Available			
Open Space	444.4	207.8	1,428.2
Vacant Lot	126.0	65.6	185.2
Vacant Building	31.1	17.0	21.9
Farm	75.3	3.0	130.3
TOTAL UNDEVELOPED/AVAILABLE	**676.8**	**293.4**	**1,765.6**
TOTAL	**3,433.1**	**1,696.0**	**3,841.5**

Land Use Inventory

Table 5.1 inventories existing land use for the corporate limits of Fort Scott; the US 69 study area from the westbound US 54 interchange to the K-7 interchange; and the US 69 study area within the city limits. **Figures 5.1** and **5.2** illustrate existing land use distribution in the entire city and the planning corridor.

Within the city, residential uses and transportation right-of-way account for about 78% of the city's urban land. The net density of residential development within the city is about 4 units per acre, and the city's gross population density (population/total area) is about 1,500 people per square mile. This is indicative of a dispersed, low-density community with a significant amount of underutilized space. The city's approximately 150 acres of commercial space, or about 1.8 acres per 100 people, also suggests relatively decentralized development patterns with significant retail and office uses. Generally, major regional trade centers devote between 1.5 and 2.0 acres/100 people to commercial uses. Industrial use within the corporate limits is a substantial 254 acres, or about 3.2 acres/100 people. With the addition of industrial land use outside the city, largely in unannexed parts of the Fort Scott/Bourbon County Industrial Park, the city's regional industrial and employment presence becomes even more impressive.

The US 69 planning corridor (Margrave Street to Horton Street) within the city limits accounts for just under half of the city's total and developed land area (excluding right-of-way) and about 40% of residential land. Moreover, the study area dominates the city's economic landscape, accounting for 87% of its commercial land and 70% of its industrial land. Civic uses, including Mercy Hospital and city and county facilities, are also major regional traffic generators within the study area.

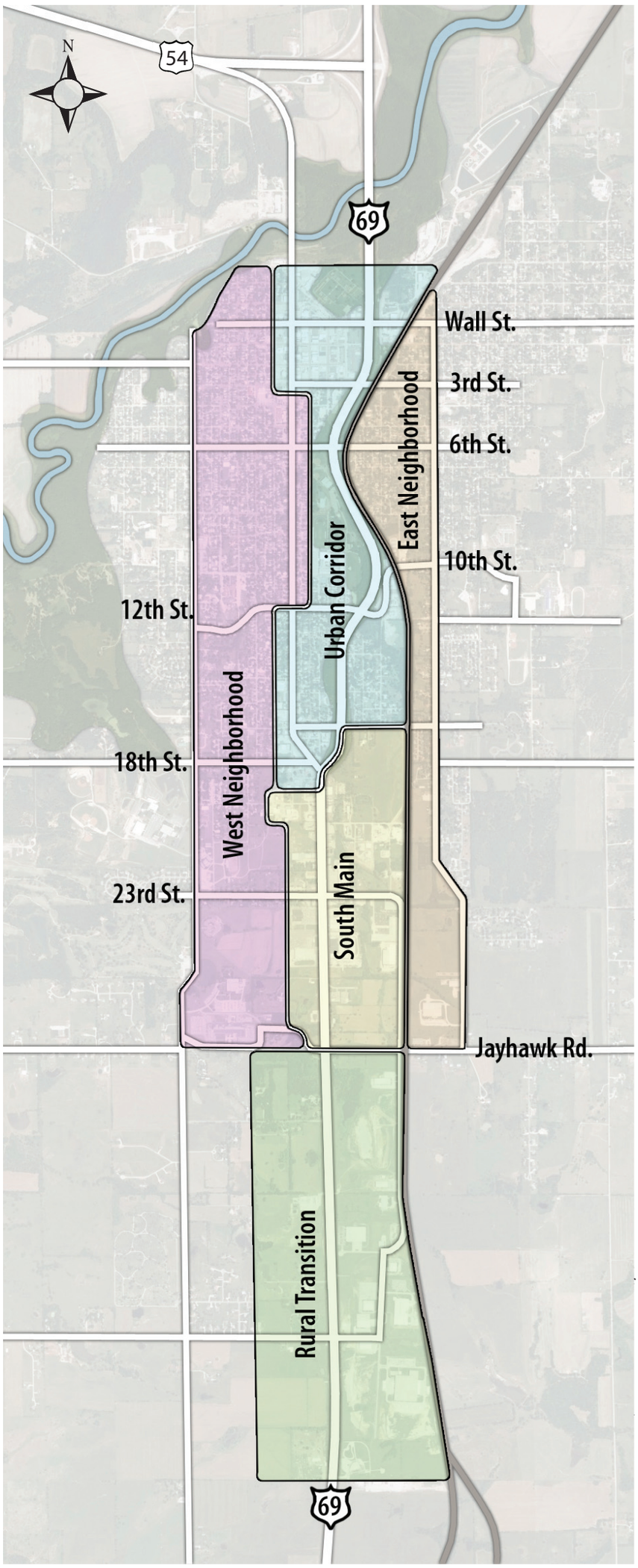


Figure 5.3 Development Contexts within Fort Scott

Development Contexts

The previous tables and maps describe community and study area land use. This discussion analyzes the character of segments of US 69 and the land around it by considering "development contexts" that include:

- **Character districts,** describing patterns of the immediate land use and functional environments of US 69.
- **Other study area streets**, considering the kinds of activities and uses served by significant streets that complement US 69 as key elements of the city's transportation network.
- **Neighborhoods**, considering the largely residential areas east and west of the principal highway corridor.

Figure 5.3 illustrates these different contexts.

The US 69 Corridor

US 69 itself passes through three character districts. From north to south, these include the urban corridor, the South Main mixed use corridor, and the rural transition.

The Urban Corridor. This segment of US 69 extends from the interchange with westbound US 54 to the intersection with South National Avenue, and incorporates the traditional city of Fort Scott. The urban corridor is generally defined by National Avenue on the west and the BNSF on the east. Characteristics of this district include:

- Open land including the Marmaton River floodplain, and some traveler services along US 54 west.
- Two adjacent business districts: Downtown and the Fort Scott National Historic Site, between the highway and Judson Street north of 3rd Street; and South National, between US 69 and Judson Street from 15th to 18th Streets.
- Older industrial and commercial uses or buildings along Wall Street east of US 69, with largely vacant industrial installations to the north.
- Additional commercial uses on the west side of US 69 between Wall Street and 6th Street; and the east between 10th and 12th Streets.
- A recreation and education cluster that includes Fisher Park and pool, Fort Scott High School, the

community center, and Frary Field south to 10th Street.

- Inundation-prone areas along Wall Street between US 69 and the railroad and to the north toward the river.
- Buck Run parallel to US 69, with extensive tree cover and natural areas along the road.
- US 69 as a four-lane divided freeway with interchanges at US 54 and Wall Street, transitioning quickly to a divided urban arterial section with signalized intersections at 3rd, 6th, and 12th Streets.
- A non-signalized diverging intersection with South National Avenue, the original US 69 route, into a business area of detached buildings and small strip centers.
- Pedestrian overpasses at 3rd and 6th Streets, with east side railroad underpass at 3rd Street and grade crossings at Wall, 6th, 10th Streets, and East National Avenue.

South Main Mixed Use Corridor. This segment of US 69 extends from the South National Avenue divergence to Jayhawk Road and is characterized by free-standing commercial and industrial buildings. Features of the South Main segment include:

- Free-standing commercial, office uses with direct access to the highway, typically in one-story buildings separated from the street by parking.
- A relatively low-density pattern, separated by vacant parcels or underutilized properties with infill potential.
- Four and five-lane undivided sections with unsignalized intersections at 19th and 20th Streets and Jayhawk Road, including signalized intersections at 23rd Street and 25th Street (Walmart Entrance).
- Wide areas of largely undeveloped public right-of-way on either side of US 69, and no pedestrian access.

Rural Transition. This segment extends from Jayhawk Road to the Bourbon-Crawford County line, passing largely through an open or transitional landscape. Its characteristics include:

- Urban/transitional uses between Jayhawk Road and the K-7 interchange.
- Major free-standing industrial uses between US 69 and the railroad within the Fort Scott/Bourbon County Industrial Park.
- Scattered commercial/office and residential uses on the west side south to K-7, with large-lot residential farther to the west.
- Agricultural/open use south of K-7.
- Four-lane divided rural section with paved shoulders between Jayhawk Road and K-7 interchange, transitioning to two-lane section south of K-7 to the county line.
- Primary accesses at section line roads, with some local and driveway access.

Other Study Area Streets

While US 69 is the city's dominant arterial, other significant streets in the Fort Scott grid link the highway to the surrounding city. Each of these streets has a specific urban character and role in the street network that complements US 69.

National Avenue. National Avenue, the original route of US 69, is an important local corridor with the features of a classical "community street" from its historic Marmaton River bridge to the US 69 convergence at about 18th Street. National Avenue forms the west edge of the traditional Downtown, and continues as a civic and residential avenue lined by city hall, churches, and historic houses. Between 14th Street and US 69, National is the "main street" of the city's original auto-oriented commercial area, the South National district, and provides a ceremonial link to the National Cemetery. The street's relatively wide, two-lane section includes on-street parallel parking. While National Avenue should be an attractive walking street, deteriorated or interrupted sidewalks present obstacles to pedestrians.

Horton Street. This north/south corridor forms the western boundary of the study area and provides principal access to Fort Scott Community College and the Bourbon County Fairgrounds, and a secondary but frequently used entrance to Mercy Hospital. Horton offers a relatively wide two-lane channel between 6th and 18th Streets, with residential uses oriented to cross streets or local loops. North of 6th Street, the street becomes a narrow one-way southbound road lined by small-lot single-family houses. Between 18th and 23rd Streets, Horton Street is a divided local boulevard, serving significant large-scale uses such as churches, the community college, and the fairgrounds. To the south, it reverts to a two-lane section with access to Mercy Hospital and Cigna on the east and large-lot residential to the west.

Margrave Street. This is the east side's only continuous north/south corridor, extending from Wall Street to Jayhawk Road. Margrave Street is largely a residential street, with occasional commercial uses south of 3rd Street and a residential development pattern that becomes less dense and more rural as it continues south. The street serves the landmark Eugene Ware Elementary School at 4th Street and provides access to the National Cemetery. Like Horton Street and National Avenue, the street provides a relatively wide two-lane section with parallel parking south of 6th Street, and narrows substantially in the oldest part of Fort Scott to the north.

Rural Transition

Horton Street

Wall Street. Wall Street is the principal connection between US 69 and Downtown and, as US 54 east, is the "main street" of the east side. Between US 69 and Margrave Street, Wall Street is an older industrial and commercial corridor with historic but underused buildings, subject to occasional flooding. As it continues upgrade to the east beyond the study area, Wall Street includes a combination of residential and intermittent commercial uses. The roadway provides a relatively wide two-lane section with parallel on-street parking.

3rd, 6th, 10th/12th, and 23rd Streets. These east/west routes cross US 69, providing access to neighborhoods on both sides of the city. Third Street is the south edge of Downtown, and the ceremonial entrance to the landmark auditorium and city hall, which is oriented to 3rd Street and National Avenue. Sixth Street has intersection-oriented commercial uses at National Avenue and accesses Fisher Park as it approaches US 69.

Tenth, Clark, and Twelfth Streets connect the two sides of town across US 69 and the BNSF tracks, and define a limited industrial and commercial cluster between the highway and the railroad. Finally, 23rd Street is the principal east-west street across the South Main segment of US 69, and its intersection has emerged as the corridor's major commercial node. As the street proceeds east, it becomes industrial and connects with Liberty Bell Road, the primary local connection to the south industrial park. This corridor is the recommended location for a new southern grade separation over the BNSF.

Surrounding Neighborhoods

While not immediately adjacent to US 69, residential neighborhoods in the study area between Horton Street and Margrave Street account for about half of the city's residential area and a substantial share of its population. Community and transportation development strategies strengthen these adjacent areas by encouraging housing conservation and reinvestment where necessary.

West Neighborhood. This district generally is distinguished by well-established single-family residential areas. Housing density and overall conditions vary throughout the district, with some of the densest original development occurring immediately west of Downtown. This area, sloping down to the river, displays substantial housing distress. Main Street, National Avenue, and Judson Street south of Downtown feature a number of larger houses in historic styles. Some of these homes have converted to renter-occupied housing, while others have undergone high-quality restoration.

To the southwest, lot sizes become larger and housing somewhat newer, with post-World War II street and development patterns. Housing is in consistently good condition here, and rental housing largely occurs in structures built for multi-family occupancy. Non-residential development is scattered throughout the area, with a mix of retail, professional, and commercial.

East Neighborhood. Eastside residential development occurs in a rough "L" configuration along the intersecting legs of the US 69/Margrave and the East Wall Street corridors. Poorer housing conditions are concentrated in the north part of this district, with the most serious problems out of the study area and north of Wall Street. To the south, residential development follows a relatively narrow corridor along Margrave, with large lots and the National Cemetery forming a tight boundary to the east. Multi-family development, including public housing, is concentrated at the eastern and northern periphery of this area.

Neighborhood west of US 69 Alignment

Context Analysis

The previous discussion described the contexts of the US 69 study area, largely from the perspective of land use, development density, and street character. However, the nature of an urban environment is also determined by its design character – the scale of buildings and the building fabric, the relationship of building to the street, the size of yards, the appearance and feeling of the landscape, and other considerations. New land development techniques such as "form-based codes" or "smart codes" attempt to classify the design character as well as land use of various parts of the city environment. This sometimes leads to land use regulations that either supplement or replace traditional zoning codes based on single-purpose land use districts. These codes consider the design of a property and its supporting public environment to be as important as the use of that property.

New Urbanist planners and designers have introduced transect analysis, a continuum of zones that adopt the concept of natural transects as a sequence of environments. Six "transect zones" (as well as two special zones) describe a gradient of urban environments from natural to high-density urban core, and provide a useful way of conceptualizing the relative physical and social character of specific parts of a city. The transect technique provides a way of unifying various elements of the urban environment into reasonably cohesive areas. The new version of the SmartCode, published in 2009 by New Urban News Publications, summarizes this philosophical approach well:

> One of the principles of Transect-based planning is that certain forms and elements belong in certain environments. For example, an apartment building belongs in a more urban setting, a ranch house in a more rural setting. Some types of thoroughfares are urban in character, and some are rural. A deep suburban setback destroys the spatial enclosure of an urban street; it is out of context. (SmartCode Version 9.2)

To illustrate in Fort Scott, the traditional Downtown and the South National business district both are considered "commercial" districts by traditional land use analysis, but are different in design, scale, transportation modes, and street relationships. Policies appropriate to Downtown, such as common parking areas, building lines, and

development of alleys, are less suitable for South National, and these differences are derived from the nature and function of each district. However, even an innovative method such as transect analysis is an oversimplification of city development, and cannot reflect the richness and variations of individual cities. Further, the technique must reflect local differences to be valid; thus, a T-6 urban core district for Kansas City is different from one in Fort Scott.

Figure 5.4 presents a transect analysis of the US 69 study area. This analysis may form a basis for design guidelines, but more significantly for the short-term, help determine reinvestment strategies presented in the next chapter. **Table 5.2** adapts the transect concept to the Fort Scott planning corridor, and suggests appropriate policy directions.

Issues, Opportunities, and Guiding Strategies

Several important trends and issues emerge from the analysis of land use and development patterns presented here.

- **Business Park/Industrial Uses.** Fort Scott, both by tradition and economic development policy, has established itself as a substantial business and industrial center, a status that is likely to grow with completion of US 69 to I-44. The Fort Scott/Bourbon County Industrial Park south of Jayhawk Road has been a key location for new employment-based development, and future industrial growth should continue in the corridor between US 69 and the BNSF. Specific opportunities include:
  - Continued industrial park development south of current industrial development at Hickory Road to the south K-7 interchange.
  - Infill light industrial sites between an extended 18th Street and Jayhawk Road, again between US 69 and the railroad. Development in this area will require a network of local streets to open vacant sites for development.
  - Land between Margrave Street and the BNSF between 23rd Street and Jayhawk Road. Development here should be limited to low-impact uses because of nearby residential areas. Construction of the proposed 23rd Street overpass will improve the ability of

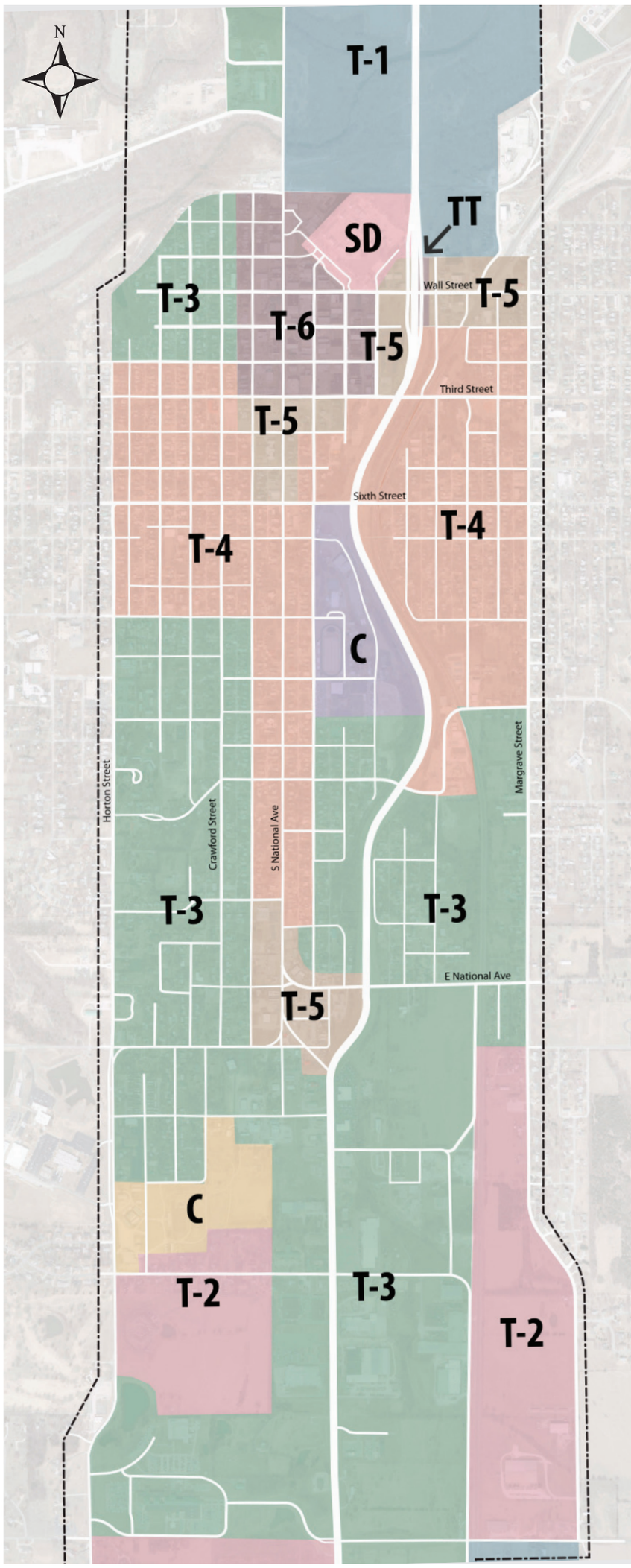


Figure 5.4 Transect Analysis Map

Table 5.2 **Transect Zones and Policy Directions in the US 69 Study Area**

Transect	Classification	Description	Fort Scott Example	Examples of Policy Directions
T-1	**Natural**	- Open or agricultural land. - Land unsuited for development because of natural resources or constraints.	- Marmaton River floodplain - Agricultural areas south of the Highway7 interchange	- Preservation of agricultural uses - Investment in trails and passive recreation - Woodlands and natural resources preservation - Stormwater management and regional retention
T-2	**Rural**	- Very low-density development. - Large-lot residential, farmsteads. - Deep setbacks from roads. - Topographical and infrastructure limitations on development.	- West side of US 69 south of Jayhawk Road	- Maximum preservation of agricultural uses - Cluster or conservation residential development that preserves open space features. - Limited locations for commercial use at major road intersections. - No direct access from US 69.
T-3	**Suburban**	- Free standing, large scale commercial or industrial buildings with individual parking lots - Land-intensive development - Typical single-story structures with single uses. - Set back from streets and highways - Separation of uses - Relatively large blocks - Informal landscaping where present - Medium to large lot residential - Urban infrastructure	- South Main corridor - Fort Scott Industrial Park - Residential areas east of Horton and south of 9th Street.	- Improved pedestrian connection to street. - Enhanced street and parking lot landscaping. - Building articulation to reduce big-box scale - Better controls of free-standing signs. - Access consolidation and interconnectedness of parking lots - Sidewalks and pathways along streets. - Building siting for better definition of streets and sidewalks. - Stormwater management to reduce impact of parking fields. - Pathways that connect residential and commercial land uses.
T-4	**General Urban**	- Medium to small-scale, free standing, large scale commercial or industrial buildings - Small to medium sized lots - One to two-story structures, typically with single uses. - Street-oriented residential, sometimes in historic styles - Standard city blocks on the grid - Both formal and Informal landscaping. - Includes civic anchors such as schools or churches, with strong street anchors. - Regular street trees - Neighborhood parks	- National Avenue from 6th to 14th Street. - Eastside residential west of Margrave from 1st to 7th. - Westside residential neighborhoods north of 9th.	- Complete sidewalk continuity, with accessible walks in good condition. - Street tree maintenance and enhancement. - Infill development in residential areas respecting existing building lines. - Mixed uses in appropriate locations. - Improved pathways to parks, schools, and public facilities.
T-5	**Urban Center**	- High-density commercial or mixed use, with buildings arranged in a business district. - Strong street relationship, with existing or potential pedestrian access and scale. - Mixed density residential, ranging from small lot single family to multi-family. - Typically one to two-story structures - Slow traffic speeds - Street trees in regular patterns	- South National business district. - National south of Downtown core - Wall Street between Downtown and tracks	- Improved sidewalks and upgraded street landscaping - Improved street facades. - Replanning of districts to consolidate access points, improve local circulation, encourage walking between buildings. - Graphics and amenities to strengthen district identity. - Development guidelines to encourage mixed uses and bring buildings closer to sidewalks. - Use of ground or building-mounted signs. - Infill residential that includes higher-density designs. - Small front yards or gardens, or built-to lines.
T-6	**Urban Core**	- High-density mixed use districts. - Buildings on or near property line, typical two or more stories. - Civic buildings of local and regional significance. - Wide sidewalks. - Parking to the rear and not directly visible or screened from streets. - Formal plazas and small open spaces.	Downtown Fort Scott	- Design guidelines - Management and preservation of historic buildings - Formal streetscape improvements, including lighting, graphics, street furniture - Improvement of active public spaces - Strong pedestrian continuity - Traffic calming and pedestrian priority - Investments guided by a comprehensive special area plan
C	**Civic**	- Civic buildings and spaces appropriate to their setting	- Fisher Park - Fort Scott High School	- Improved connections with immediate environment. - Continued investment in quality of facility
SD	**Special District**	Special areas or features that are unique and do not fit easily in one of the other classifications	- Fort Scott National Historic Site	- Improved connections with immediate environment. - Continued investment in quality of facility

Business Park/Industrial

Commercial Development

this area to attract new business development.

- **Commercial Development.** The study area's three primary business districts, South Main, South National, and Downtown, fall into different urban contexts and, consequently, present different opportunities. Recent commercial development has gravitated toward the South Main corridor, and the 23rd Street intersection will continue as the central intersection of this district, especially with construction of a grade-separated railroad crossing. Despite major new commercial or mass retail development at 23rd and 25th Streets, some key sites along the corridor are relatively underutilized, or are in obsolete commercial or industrial use. Opportunity sites for commercial development include:
  - Redevelopment or higher utilization of sites of land on the west side of US 69 north of 19th Street.
  - Open land between the Bourbon County Fairgrounds and US 69 south of an extended 20th Street.
  - Open land east of US 69 and north of 25th Street.
  - Redevelopment of underutilized commercial and industrial buildings along US 69 north of 25th Street.

The existing South National business district is fully developed but includes possibilities for redevelopment or additional commercial sites, especially with redesign of the local street system. Investments in both the public and private environment could make this area into an attractive urban center, as envisioned in the transect analysis. Chapter Six presents such a reinvestment program for the South National district.

The primary land use issue in Downtown Fort Scott is preservation and higher occupancy for its historic building inventory. Traditional multi-story downtown buildings should contain retail, hospitality, and service occupancy at street level, with residential, office, or event space on upper levels. Downtown as a district should continue to house a mix of residential, commercial, office, and civic uses. Major new development sites include Wall Street immediately west of US 69 and National Avenue north of Oak Street and adjacent to the national historic site. New projects here should have the characteristics of a T-6 district, respecting urban building lines, maintaining street engagement and pedestrian access, and locating parking away from major street exposures or pedestrian paths. Chapter Six presents more detailed concepts for downtown.

- **Downtown Environs.** Formerly residential streets such as Main Street, National Avenue, and Judson Street extending south of downtown have developed an increasingly mixed use character, as large houses have converted to office, hospitality, and other non-residential uses. These transitions have generally respected the neighborhood context by maintaining residential scale. Where conversion or redevelopment occurs, new projects should continue to respect neighborhood scale and design patterns by reusing and adapting existing structures or, when new construction is required, maintaining building scale and footprints consistent with precedents. On-site parking should not interrupt the relationship of building to the street.
- **Housing Distress and Vacancy.** While most of the housing stock in the study area is relatively sound, vacant lots and structural deterioration in some areas affect neighborhood integrity in the study area. Most vacant or distressed property


Downtown Environs

Downtown Environs

Commercial Development


Parks and Recreation

is located north of 6th Street and along East Wall Street.

Neighborhood development policies can effectively use vacant sites and structures as catalysts for stabilization. Short-term use for open spaces, community gardens, or playgrounds can transition to more permanent solutions, such as residential infill development. City policies should support the conversion of significant buildings to new uses through regulatory approvals, development tools such as tax increment financing, and other incentives. The community should also consider creating a public and private sector partnership that includes a nonprofit development corporation, a supporting consortium of local lenders, and homeowner support services, to address overall affordable housing challenges. Such a partnership can support employment growth and reinvestment by expanding housing opportunities for present and prospective residents of the city.

- **Rural Development.** During the last thirty years, a large share of Fort Scott's natural residential growth has occurred outside of the city. This development typically includes acreages and rural subdivisions without urban services with up to 30 lots. Much of this growth has occurred southwest of the city, along 215th Street (Horton Street), and east-west corridors like 18th Street, Jayhawk Road, and Indian Road toward Lake Fort Scott. At the same time rural development to the southeast appears to be slowing. Bourbon County outside Fort Scott does not exercise zoning or subdivision control.

  While low-density residential development will remain popular, it does represent a loss of potential city tax base and spreads provision of public safety and road services out over a large area. Additionally, uncontrolled commercial or industrial development could occur along the south US 69 corridor, potentially creating land use conflicts with neighboring residents, degrading the roadscape, and discouraging more desirable long-term development. City and county government should cooperatively:

  – Implement programs that improve the city's competitive position in attracting new housing development.

  – Encourage conservation development and lot clustering when rural residential development occurs, to protect landforms and make services more efficient.

  – Control non-residential land uses along the US 69 south corridor.

- **Parks and Recreation.** Most of the area's major parks and recreation facilities are west of US 69, but such important community resources as Fisher Park, City Pool, the community center, Frary Field, and the high school's athletic fields are located along the highway. This opens the possibility of a central greenway that connects these major features and provides access to them from all parts of the city. Gunn Park, the city's signature park, is on the western edge of the city along the Marmaton River, but its connections to surrounding areas are limited to Park Avenue to the east and Gunn Park Road (208th Road) to 18th Street on the south. Improved pathway connections between Gunn Park and the study area's higher-density neighborhoods and other open space resources would expand access to this popular park. Fort Scott Community College has developed pathways around campus ponds that have been improved as prairie conservation areas, with native grasses, forbes and trees.


Downtown Environs


Downtown Environs

PART TWO: MARKET ANALYSIS

Part One of this chapter examined existing land use and development patterns within both the city of Fort Scott and the US 69 study area. It concluded by discussing opportunities and strategies that guide development in this important part of the region. This section assesses market potential for additional commercial, office, and residential development in the city and the US 69 study area. This forms the basis for a future use scenario that both guides development decisions and provides a basis for projecting future traffic demand and providing transportation recommendations that will meet this demand.

Trade Area Definition

The market analysis begins by defining Fort Scott's market area. As a service center, Fort Scott provides goods and services to both its own residents and a broader region. For regional demand, it also competes with other service centers such as Pittsburg and Nevada, and, from a broader perspective, Joplin and even the Kansas City metropolitan area. However, these population centers and their market regions also present Fort Scott with opportunities.

Figure 5.5 illustrates Fort Scott's trade "rings" which, in turn, are the basis for calculating commercial demand. Consumers in each of these areas have different expectations and priorities as they consider their choices.

- *Primary Area.* The primary trade area includes the land within Fort Scott's city limits. City residents will shop locally because of convenience and preference, if a variety of desirable goods are available at reasonably competitive prices.
- *Secondary Area.* The secondary trade area extends 10 to 23 miles from the city's municipal limits. The trade area is defined by a gravity model that considers the population and distance of cities of similar size and assumes that people living within the vicinity travel to regional trade centers for a greater selection of goods and services. The area extends about halfway to surrounding market centers, including Pittsburg, Bassett, Pleasanton, and Nevada. People in the secondary area are inevitably traveling some distance for the bulk of their purchases. Their

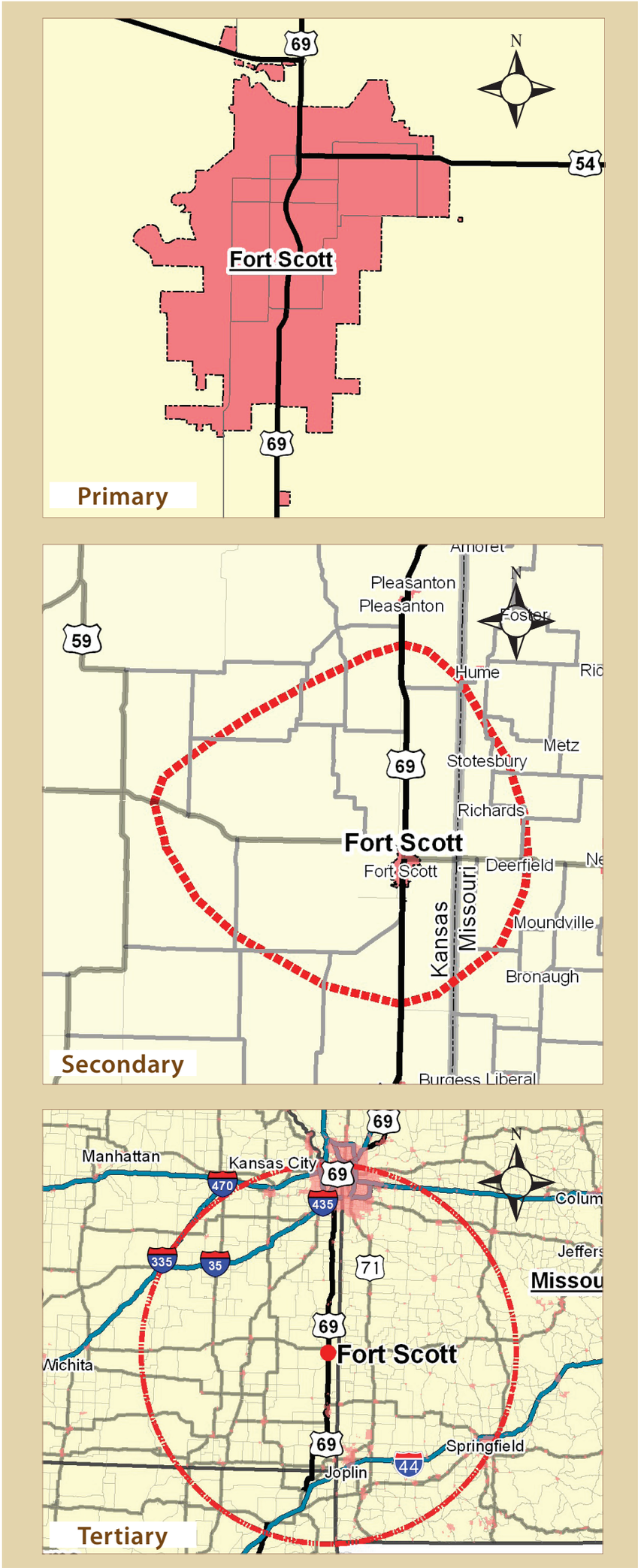


Figure 5.5 Primary, Secondary, Tertiary Trade Area Maps

choice is determined by variety, service, price, and experience.

- *Tertiary Market.* The tertiary trade area extends 90 miles from the city's municipal limits and extends into the Kansas City metropolitan area. Many consumers in this market are attracted by special experiences, such as a destination retailer or a substantial local attraction. Thus, the Fort Scott National Historic Site as a unique feature exercises some attraction to visitors from the tertiary market.

Demographics

Population Trends and Forecasts

This discussion describes changes in the characteristics and dynamics of Fort Scott's population. **Table 5.3** summarizes the historical population change in Fort Scott, while **Table 5.4** compares Fort Scott's population to other communities in the region.

The city's population has declined gradually from a peak of 10,335 in 1950 to an estimated 7,940 in 2008. Substantial declines occurred during the 1950s, 1960s and 1980s, and estimates by both the US Census Bureau and Claritas Inc. suggest a significant reduction during this decade as well. Meanwhile several cities around Fort Scott have experienced a similar pattern of recent population declines, but neighboring Pittsburg presented a slight increase. During the 1990s, Bourbon County's population increased slightly while Fort Scott's decreased moderately, suggesting increased rural residential development near, but outside of, the city.

Population change in a community is explained by three basic factors:

1. **Comparison of births and deaths.** A surplus of births over deaths tends to cause population increases. A community with a younger population, with large cohorts in child-bearing or family formation years, will experience a higher birth rate, measured as number of the births per 1,000 people.
2. **Construction and Migration Patterns.** If more people move to the community than leave, its population will tend to increase, while outmigration trends population downward. Forces that encourage in-migration include employment growth, new housing development, community services, and a high quality of life.
3. **Annexation.** In addition to internal population change, a community can grow by annexing new populated areas.

Construction activity tracks changes in population and the number of households since 2000. New construction correlates to added population, while demolished structures correlates to population loss (although many demolished units were previously unoccupied). **Table 5.5** presents the city's construction activity since 2000. Based on permits issued, the city of Fort Scott added 109 new units since 2000, with single family residential accounting for a less than half of new units. A large project caused a multi-family peak in 2003, while single-family construction within the city remained in single digits. Average household size is typically smaller in multi-family units than in single-family homes.

Population Projections

Future population projections are a foundation for land use planning and guide planning and policy decisions regarding future investments. **Table 5.6** projects future population growth for the city and region. A five-year projection is provided by Claritas, a demographic research firm, which shows the secondary and tertiary markets growing. Projections for the primary market are explained later in this chapter.

While recent construction activity could suggest growth since 2000, an aging population, the large proportion of new construction in multi-family units,

Table 5.3 **Historical Population Change, Fort Scott**

Year	Population	Decennial Change	Decennial % Change	Average Annual Rate of Change
1950	10,335			
1960	9,410	(925)	-9.0%	-0.9%
1970	8,967	(443)	-4.7%	-0.5%
1980	8,893	(74)	-0.8%	-0.1%
1990	8,362	(531)	-6.0%	-0.6%
2000	8,297	(65)	-0.8%	-0.1%
2008 Est.*	7,940	(357)	-4.3%	-0.4%

Source: U.S. Census Bureau, * Claritas, Inc.

Table 5.4 **Population Change, Fort Scott & Area Communities 1990-2008**

	1990 Population	2000 Population	2007 Population*	Change 2000-2007	% Change 2000-2007	Growth Rate bw 2000/2007
Fort Scott	**8,362**	**8,297**	**7,915**	**-382**	**-4.6%**	**-0.66%**
Pittsburg, KS	17,775	19,243	19,536	+293	1.5%	0.21%
Nevada, MO	8,597	8,607	8,318	-289	-3.4%	-0.48%
Iola, KS	6,351	6,302	5,843	-459	-7.3%	-1.05%
Pleasanton, KS	1,231	1,387	1,337	-50	-3.6%	-0.51%
Bourbon County	14,966	15,379	14,803	-576	-3.7%	-0.53%

Source: U.S. Census Bureau, *2007 estimate by U.S. Census Bureau

Table 5.5 **Residential Construction Activity In Fort Scott 2000-2008**

Type	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total Units
SF Units	6	5	2	6	5	6	4	2	1	37
MF Units	2	0	2	62	0	4	2	0	0	72
Total	8	5	4	68	5	10	6	2	1	109
Demolition (-)	8	3	7	7	6	15	0	6	12	64
Total	**0**	**2**	**-3**	**61**	**-1**	**-5**	**6**	**-4**	**-11**	**45**

Table 5.6 **Projected Population 2000-2013 - Market Areas, Mutually Exclusive**

	1990 Population	2000 Population	Growth rate bw 1990/2000	% Change 1990/2000	2008 Estimate	2013 Estimate*	2000-2013 Growth Rate	% Change 2000/2013
Primary (City of Fort Scott)	8,522	8,297	-0.3%	-2.6%	7,940	7,960	-0.3%	-4.1%
Secondary (10-23 mile area)	7,491	8,172	0.9%	9.1%	8,167	8,142	0.0%	-0.4%
Tertiary (90-mile radius)	2,117,844	2,372,431	1.1%	12.0%	2,575,580	2,668,150	0.9%	12.5%

Source: U.S. Census Bureau, Claritas, Inc., *RDG Planning & Design (0.25 CAGR)

Table 5.7 **Alternative Fort Scott Projections Using Growth Rates**

	2000	2008	2010	2015	2020	2025	2030	2035	2040
O% Migration	8,197	8062	7,993	7,966	7,970	7,963	7,920	7,854	7,733
2008 Census Estimate	8,197	7,948							
2008 Claritas Estimate	8,197	7,933							
.25% annual Growth		**7,940**	**7,900**	**7,999**	**8,100**	**8,201**	**8,305**	**8,409**	**8,514**
.5% annual growth		7,940	7,900	8,099	8,304	8,514	8,729	8,949	9,175

Source: RDG Planning & Design

Table 5.8 **Median Income Forecasts in Fort Scott's Market Areas, 2008**

	2000	2008 Est.	Change	% Change
Primary	$26,867	$31,833	$4,966	18%
Secondary	$31,065	$37,097	$6,032	19%
Tertiary	$39,228	$46,808	$7,580	19%

Source: Claritas, Inc., 2008

and a relatively aggressive housing demolition program help explain the population decrease observed within the city. The secondary market's population is likely to remain stable, while the tertiary market, including the Kansas City region, will grow steadily during the next five years.

Table 5.7 displays alternative population projections based upon natural population change (a zero migration rate) as well as two alternative growth rates are reported.

- *Natural Population Change. A* no net migration, a surplus of births over deaths will produce a modest population increase during the next twenty years.
- *Growth Rate 0.25%.* Assuming 0.25% compound annual growth rate (CAGR) from 2008 to 2040, Fort Scott will grow by about 600 persons. This scenario reverses long-term past trends.
- *Growth Rate 0.5%.* Assuming 0.5% compound annual growth rate (CAGR) from 2008 to 2040, Fort Scott will grow by about 1,200 persons.

Income Characteristics

Table 5.8 presents the median household income for residents of each trade area. Fort Scott's median income was $31,833 in 2008, significantly lower than that of the region.

Table 5.9 presents the number of households in household income ranges. Nearly half of the households earn less than $35,000. Comparing Fort Scott to the Secondary Market, Fort Scott has a proportionally larger share of households earning incomes $25-35,000 and smaller share of households earning $50-75,000.

Table 5.9 **2008 Estimate Households by Household Income, Mutually Exclusive Segments**

	Fort Scott	Secondary	Tertiary	Average Distribution
Income Less than $15,000	747	451	132,564	
	22.4%	14.4%	13.1%	16.6%
Income $15,000 - $24,999	526	405	116,378	
	15.8%	12.9%	11.5%	13.4%
Income $25,000 - $34,999	580	369	123,176	
	17.4%	11.8%	12.2%	13.8%
Income $35,000 - $49,999	575	572	168,840	
	17.2%	18.2%	16.7%	17.4%
Income $50,000 - $74,999	531	727	202,200	
	15.9%	23.2%	20.0%	19.7%
Income $75,000 - $99,999	214	338	114,996	
	6.4%	10.8%	11.4%	9.5%
Income $100,000 - $149,999	107	179	100,353	
	3.2%	5.7%	9.9%	6.3%
Income $150,000 or more	59	90	53,047	
	1.8%	2.9%	5.2%	3.3%
TOTAL	3,339	3,137	1,011,548	
	100.0%	**100.0%**	**100.0%**	**100.0%**

Source: Claritas, Inc., 2008

Table 5.10 **Neighborhood and Community Shopping Centers**

Location	Description
Downtown	Independent storefronts with specialty businesses Hospitality and restaurant uses Services such as photographers Fort Scott National Historic Site Substantial vacant space as street level Recent streetscape enhancements
South National	Auto services Local service retailers: hardware Service clubs Restaurants
East Wall Street	Minimum convenience commercial and services
US 69 - South Main	Large-scale retailers: Walmart, Walgreen's Offices Franchise and local restaurants Auto Services and Dealership Hospitality/Lodging

Table 5.11 **Work Places and Employment for Fort Scott's Primary Trade Area, 2008**

Business Description	Total Establishments	%	Total Employed	%
Industries (All)	522	100%	6,361	100%
Agriculture (All)	6	1%	19	0%
Mining (All)	0	0%	0	0%
Construction (All)	18	3%	309	5%
Manufacturing (All)	23	4%	968	15%
Transportation, Communications/Public Utilities	19	4%	159	2%
Wholesale Trade (All)	17	3%	182	3%
Retail (All Retail)	109	21%	1153	18%
Building Materials and Garden Supply	9	8%	129	11%
General Merchandise Stores	4	4%	210	18%
Food Stores	3	3%	129	11%
Auto Dealers and Gas Stations	17	16%	150	13%
Apparel and Accessory Stores	5	5%	13	1%
Home Furniture, Furnishings and Equipment	6	6%	24	2%
Eating and Drinking Places	28	26%	373	32%
Miscellaneous Retail Stores	37	34%	125	11%
Finance (All)	57	11%	887	14%
Service (All)	235	45%	2,322	37%
Public Administration (All)	38	7%	362	6%

Source: Claritas, Inc., 2008

These income patterns suggest that Fort Scott's residents are less affluent than those of the larger region. Future housing and retail services should reflect these market demographics.

THE COMMERCIAL MARKET

As discussed earlier in this chapter, Fort Scott has three primary commercial centers, all related to US 69: the traditional Downtown, the South National district, and the South Main corridor. South Main with mass retailers tends to serve regional needs, while South National's local-scaled establishments are more focused on the immediate market areas. Downtown's historic buildings, specialty businesses, and the Fort Scott

Table 5.13a **Share of Total Retail Sales, 2008 (exclusive)**

	Total Retail Sales	% of Total
Primary	$ 97,377,320	0.26%
Secondary	$ 35,882,520	0.10%
Tertiary	$ 37,461,873,488	99.65%
Total	**$ 37,595,133,328**	**100%**

Table 5.13b **Share of Total Retail Sales, Secondary Market 2008 (exclusive)**

	Total Retail Sales	% of Total
Primary	$ 97,377,320	73.1%
Secondary	$ 35,882,520	26.9%
Total	**$ 133,259,840**	**100%**

Source: Claritas, Inc.

Table 5.12 **Consumer Spending by Product, 2008**

Annual Expenditures	2008
Total Apparel	64
Women's Apparel	55
Men's Apparel	66
Girl's Apparel	81
Boy's Apparel	83
Infant's Apparel	**94**
Footwear (excl. Infants)	67
Other Apparel Prods/Services	58
Entertainment:	
Sports and Recreation	69
TV, Radio and Sound Equipment	75
Reading Materials	**95**
Travel	66
Photographic Equipment	71
Food at Home:	
Total Food at Home	83
Cereal Products	83
Bakery Products	82
Fish and Seafood	69
Meats (All)	76
Dairy Products	86
Fresh Milk and Cream	**93**
Other Dairy Products	86
Fruits and Vegetables	75
Juices	68
Sugar and Other Sweets	**91**
Fats and Oils	85
Nonalcoholic Beverages	86
Prepared Foods	**93**
Health Care:	
Total Health Care	**94**
Medical Services	82
Prescription Drugs	**104**
Medical Supplies	**91**
Household Equipment:	
Total Household Textiles	65
Domestic Textiles	68
Window and Furniture Covers	62
Total Furniture	70
Bedroom Furniture	73
Living/Dining Room Furniture	69
Other Furniture	69
Major Appliances	79
Small Appliance/Houseware	74
Misc Household Equipment	82
Misc Personal Items:	
Personal Care Products and Services	78
Personal Expenses and Services	74
Smoking Prods/Supplies	**114**
Miscellaneous Items:	
Total Education	65
Room and Board	75
Tuition/School Supplies	64
Pet Expenses	75
Day Care	64
Contributions (All)	64
Other Misc. Expenses:	
Housekeeping Supplies	77
Total Food away from Home	77
Breakfast and Brunch	82
Dinner	74
Lunch	76
Total Alcoholic Beverages	85
Alcoholic Beverages at Home	86
Alcoholic Beverages away from Home	83
Shelter and Related Expenses:	
Household Services	71
Household Repairs	68
Total Housing Expenses	80
Fuels and Utilities	81
Telephone Service	80
Transportation Expenses:	
Total Transportation Expenses	84
New Autos/Trucks/Vans	76
Used Vehicles	**98**
Boats and Outboard Motor, Etc	88
Towing Charges	**106**
Gasoline	84
Diesel Fuel	70
Rented Vehicles	52
Automotive Maintenance/Repair/Other	84
Total Specified Consumer Expenditures	78

National Historic Site serve an amalgam of local, regional, and tourist-related clients. The east side of the city has very limited retailing, generally found along East Wall Street (US 54 east US 69). **Table 5.10** summarizes business types within these centers.

Work Place and Employment

Table 5.11 displays the distribution and percentages of establishments and employees for the primary trade area. Within the primary market area, 45% of all establishments are service businesses and 21% are retailers. These two categories account for 55% of the market's 2,322 employees, followed by finance at 11% and public administration at 7%. Within the retail classification, eating/drinking establishments and miscellaneous retail stores represent about half of the establishments and employees.

Consumer Spending Patterns by Product

Table 5.12 compares annual consumer expenditures by product type in each trade area to the national average. National average per capita expenditures are equal to a market index of one hundred (100), which is the ratio of the Annual Average Household Expenditure (AAHE) in each trade area compared to the AAHE for the United States. Scores above 100 indicate that consumers in the specific area spend more on a specific category of items than the national average.

People in Fort Scott generally fall below the national average for consumer expenditures. Smoking products and prescription drugs are areas of higher than average spending. Infant's apparel, reading materials, some food products, health care, and select auto services also approach national average expenditures. These suggest possible opportunity areas in the primary market.

Retail Sales Analysis

Tables 5.13a and 13.b indicate total retail sales in each area. In 2008, the Fort Scott's primary and secondary market areas together reported about $133 million in retail sales. Fort Scott's share was about 73% of this total, or about $97 million, with the remainder divided among the rural county and smaller communities. In comparison to the 90-mile tertiary market, these Fort Scott

Table 5.14 Retail Market Power Opportunity Gap

Analysis	2008 Demand Consumer Expenditures	2008 Supply Retail Sales	Opportunity Gap Surplus/ Shortage	2008 Demand Consumer Expenditures	2008 Supply Retail Sales	Opportunity Gap Surplus/ Shortage
Total Retail Sales Including Eating and Drinking Places	89,305,340	74,739,949	14,565,391	191,181,711	108,582,611	82,599,100
Auto Parts/Accessories, Tire Stores	1,871,991	3,207,822	**(1,335,831)**	4,196,216	4,015,639	180,577
Furniture and Home Furnishings Stores	2,610,776	750,170	1,860,606	5,742,306	776,904	4,965,402
Furniture Stores	1,422,306	716,171	706,135	3,100,853	717,002	2,383,851
Home Furnishing Stores	1,188,470	33,999	1,154,471	2,641,453	59,902	2,581,551
Electronics and Appliances Stores	2,476,530	2,142,044	334,486	5,297,116	2,751,701	2,545,415
Appliances, Televisions, Electronics	1,917,151	1,629,238	287,913	4,086,013	1,986,159	2,099,854
Computer and Software Stores	464,624	207,701	256,923	1,005,301	336,238	669,063
Camera and Photographic Equipment	94,755	305,105	**(210,350)**	205,802	429,305	**(223,503)**
Building Material and Garden Equipment	12,441,905	12,146,009	295,896	27,831,248	13,702,862	14,128,386
Building Material and Supply Dealers	11,412,198	11,561,590	**(149,392)**	25,591,330	12,314,993	13,276,337
Lawn/Garden Equipment, Supplies	1,029,707	584,419	445,288	2,239,919	1,387,869	852,050
Food and Beverage Stores	15,141,565	13,267,741	1,873,824	31,380,652	19,707,959	11,672,693
Grocery Stores	13,768,309	12,627,832	1,140,477	28,556,021	18,994,182	9,561,839
Specialty Food Stores	412,667	0	412,667	857,433	73,776	783,657
Beer, Wine and Liquor Stores	960,589	639,909	320,680	1,967,198	640,001	1,327,197
Health and Personal Care Stores	6,944,159	2,862,834	4,081,325	14,197,052	6,231,197	7,965,855
Pharmacies and Drug Stores	6,032,554	2,820,174	3,212,380	12,319,708	6,151,758	6,167,950
Cosmetics, Beauty Supplies, Perfume	242,019	9,662	232,357	492,527	21,002	471,525
Optical Good	238,227	0	238,227	507,910	0	507,910
Other Health and Personal Care	431,359	32,998	398,361	876,907	58,437	818,470
Gasoline Stations	14,054,833	13,807,388	247,445	31,009,691	24,854,167	6,155,524
Clothing & Clothing Accessories Stores	4,316,489	1,244,221	3,072,268	9,489,646	1,329,309	8,160,337
Clothing Stores	3,167,482	1,127,697	2,039,785	6,961,776	1,194,171	5,767,605
Men's Clothing Stores	217,256	0	217,256	476,198	0	476,198
Women's Clothing Stores	718,076	392,870	325,206	1,627,718	425,247	1,202,471
Children's, Infants' Clothing Stores	229,429	0	229,429	459,586	5	459,581
Family Clothing Stores	1,744,780	734,827	1,009,953	3,821,369	768,919	3,052,450
Clothing Accessories Stores	63,689	0	63,689	143,125	0	143,125
Other Clothing Store	194,252	0	194,252	433,779	0	433,779
Shoe Stores	613,188	29,525	583,663	1,324,058	48,139	1,275,919
Jewelry, Luggage, Leather Goods	535,819	86,999	448,820	1,203,811	86,999	1,116,812
Sporting Goods, Hobby, Book, Music	1,969,424	178,106	1,791,318	4,166,474	445,970	3,720,504
Sporting Goods, Hobby, Musical Instrument	1,326,817	113,180	1,213,637	2,857,414	349,848	2,507,566
Book, Periodical and Music	642,607	64,926	577,681	1,309,060	96,122	1,212,938
General Merchandise Stores	13,758,706	11,986,667	1,772,039	29,270,554	16,980,816	12,289,738
Department Stores Exld Leased Dpts	6,219,122	353,537	5,865,585	13,341,690	841,003	12,500,687
Other General Merchandise Stores	7,539,584	11,633,130	**(4,093,546)**	15,928,864	16,139,813	**(210,949)**
Miscellaneous Store Retailers	2,959,812	2,448,241	511,571	6,397,772	2,544,353	3,853,419
Florists	200,526	407,000	**(206,474)**	438,108	407,620	30,488
Office Supplies, Stationery, Gift Stores	1,150,338	1,041,249	109,089	2,455,220	1,041,999	1,413,221
Used Merchandise Stores	228,492	258,935	**(30,443)**	490,792	282,417	208,375
Other Miscellaneous Store Retailers	1,380,456	741,057	639,399	3,013,653	812,317	2,201,336
Foodservice and Drinking Places	10,759,150	10,698,706	60,444	22,202,985	15,241,736	6,961,249
Full-Service Restaurants	4,958,151	3,353,860	1,604,291	10,223,694	5,495,427	4,728,267
Limited Service Eating Places	4,356,202	6,940,227	**(2,584,025)**	9,003,216	9,212,632	**(209,416)**
Special Foodservices	898,755	34,426	864,329	1,861,056	61,671	1,799,385
Drinking Places Alcoholic Beverages	546,042	370,193	175,849	1,115,020	472,007	643,013

Source: Claritas, Inc.
Note: Auto sales and non-store retailers are not included in the adjusted total.

Table 5.15 **Potential Demand for Retail Space in Fort Scott 2013 (auto & non-store retail withheld)**

	Primary	Secondary	Total
STEP 1A: PROJECTING TOTAL DEMAND IN 2013			
2008 Estimated Demand	$89,305,340	$191,181,711	$280,487,051
2008 Estimated Population	7,948	8,167	16,115
2008 Per Capita Dollars	$11,236	$23,409	
2013 Projected Population	7,960	8,167	16,127
2013 Projected Demand	$89,440,174	$191,181,711	$280,621,885
STEP 1B: PROJECTING THE INCREMENT FOR DEMAND BETWEEN 2008 & 2013			
2013 Projected Demand	$89,440,174		$280,621,885
2008 Estimated Demand	$89,305,340		$280,487,051
Increment 2008-2013	$134,834	$0 (sustained)	$134,834
STEP 1C: PROJECTING THE CAPTURED SHARE OF FUTURE DEMAND			
Increment 2008-2013	$134,834	$0 (sustained)	$134,834
Market Area Capture rate	84%	57%	
Market Area Share of the Increment	**$112,843**	$0 (sustained)	$112,843
STEP 3A: CALCULATING OPPORTUNITY/GAP			
Existing Gap (difference: demand-supply)	$14,565,391	$82,599,100	$97,164,491
Future Gap (City: $64,432,319 - $54,694,890)	$21,991	$0 (sustained)	$21,991
Total Gap (City: $370,555,714 - $443,301,366)	$14,587,382	$82,599,100	$97,186,482
STEP 3B: CALCULATING MARION'S SHARE OF THE GAP			
Total Gap	14,587,382	$82,599,100	$97,186,482
Marion Capture Rate	60%	15%	
Share of Gap	**$8,752,429**	**$12,389,865**	**$21,142,294**
STEP 5: DETERMINING SQUARE FOOTAGE			
Share of Gap	**$8,752,429**	**$12,389,865**	**$21,142,294**
Total Increment	**$112,843**	**$0 (sustained)**	**$112,843**
Sales Yield Per Square Foot	$320	$320	
Citywide commercial Space Demand (SF)	27,704	38,718	66,422

markets were less than 1% of the total retail sales within the 90-mile radius tertiary market area.

The primary market area for Fort Scott includes retail spending within its city limits. As shown in **Table 5.14**, Fort Scott's primary market area produced about $97 million in retail sales in 2008, while its population spent over $118 million. The "balance of trade deficit" of $21 million in sales indicates that consumers are spending substantial resources outside the city. Remedying this deficit by retaining more local expenditures would significantly improve the city's economy and presents a major growth opportunity.

Table 5.15 identifies the gap between consumer demand (expenditures) and retail sales within the primary and secondary trade areas. A positive value results from demand exceeding supply, indicating a leakage of consumer dollars out of the city. Thus, residents in the specific market area are spending more on a given item than local businesses are selling. For example, for furniture sales, primary market area consumers spent $1.8 million more on furniture than local retailers sold, indicating that local consumers are buying a significant amount of furniture outside of the city. This may demonstrate an opportunity for a local business to capture these currently exported expenditures. A negative value, on the other hand, indicates that sales of an item exceed local demand, indicating a positive balance of trade. For example, in 2008, retail sales for building materials and supplies exceeded expenditures by the local population by $149,392. This suggests a relative balance in the local market and a minor attraction of customers from the region.

Retail categories showing opportunities for potential growth for Fort Scott, include:

- *Health and Personal Care Stores.* Health and Personal Care Stores reported nearly $2.8 million in retail sales. Nearly all of the demand is for pharmacies and drug stores ($6.9 million), leaving a gap of $4 million.
- *Clothing and Accessory Stores.* Sales reached $1.2 million, while the demand was $4.3 million, representing nearly $3 million in retail leakage.
- *Food and Beverage Stores.* While sales reached $13.2 million in 2008, expenditures of about $15 million produced leakage of about $1.8 million.
- *General Merchandise.* Current demand and supply is well-balanced for department stores. Walmart is a significant contributor to the sales and helps attract regional households to Fort Scott.

Table 5.16 Required Commercial Land, 2008-2030

Population Proportion Method	2010	2020	2030	2040	Conversion Need	Designated Land (x1.5)
Projected Population	7,940	8,100	8,305	8,514		
Commercial Use/100 res.	1.88	1.88	1.88	1.88		
Projected Commercial Use (acres)	149	152	156	161	12.0	18.0
Residential Use Proportion Method						
Residential Land (acres)	1,006	1,033	1,060	1,087		
Commercial/Residential Ratio	0.15	0.15	0.15	0.15		
Projected Commercial Use (acres)	150	154	159	163	13.0	20.0

Table 5.17 Industrial Land in the Fort Scott Study Area

	Traditional City	Expanded Study Area (including industrial park)	Total	Acres Per 100 People
Industrial	**115.3**	214.9	**330.2**	**4.16**
General Industrial	19.1	**45.6**	**64.7**	**0.84**
Light Industrial/Distribution	96.2	169.3	**265.5**	**3.32**

Source: RDG Planning & Design, 2009

Table 5.18 Estimated Industrial Land Requirements, 2008-2030

Population Proportion Method	2008	2020	2030	2040	Conversion Need	Designated Land (x3)
Projected Population	7,940	8,100	8,305	8,514		
Industrial Use/100 res.	4.16	4.16	4.16	4.16		
Projected Industrial Use (acres)	330.25	336.95	345.47	354.20	23.96	71.87
Residential Use Proportion Method						
Residential Land (acres)	906.35	924.39	937.94	959.57		
Industrial/Residential Ratio	0.364368	0.364368	0.364368	0.364368		
Projected Industrial Use (acres)	330.25	336.82	341.76	349.64	19.39	58.17

Source: RDG Planning & Design, 2009

Table 5.19 Projected Housing Development Demand

	2010	2015	2020	2025	2030	2035	2040	Total
Population at the End of Period	7,900	7,999	8,100	8,201	8,305	8,409	8,514	
Household Population at End of Period	7,616	7,711	7,808	7,906	8,006	8,106	8,208	
Average People/Household	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
Household demand at End of Period	3,311	3,353	3,395	3,437	3,481	3,524	3,569	
Projected Vacancy Rate	11.0%	10.0%	9.5%	9.0%	8.5%	8.0%	8.0%	
Unit Needs at End of Period	3,720	3,725	3,751	3,777	3,803	3,833	3,879	
Replacement Need		50	40	35	30	25	15	
Cumulative Need		55	66	61	56	55	61	354
Average Annual Construction		11	13	12	11	11	12	12

Again, **Table 5.14** presents retail demand and supply. The figures in the Opportunity/Gap column are used later in this analysis to calculate potential retail space. Auto sales and non-store retailers are withheld for the purpose of projecting future retail space square footage.

Despite these markets showing opportunities for growth, development in Fort Scott faces several challenges, including:

1. *Access.* Visibility and access is critical for any commercial development. With greater volume and regional travel, businesses along US 69 have greater opportunities to attract incidental customers than the more destination-based Downtown or South National districts. Along with good access and visibility, a regional destination attracts both customers for itself and secondary customers for other businesses. For example, a customer from out-of-town buying a car at a Fort Scott dealership may eat lunch or dinner at a Fort Scott restaurant.

2. *Rooftops*. Service-related and retail commercial uses typically target household growth before breaking ground. Features that they consider include the rate of increase of households in an area and median household income levels. Thus, the ability of a community to grow is critical to commercial supply and demand. Fort Scott, on the other hand, has experienced at least some population loss within its central city. This is somewhat moderated from a retail perspective by growth in the surrounding county. Yet distance from the destination does weaken allegiances and top-of-mind preferences to some degree.

3. *Market Competition.* Downtown has a large amount of available storefront space. Also, the 2008-09 economic downturn has had a palpable effect on local and specialty retailers. A large supply of available space can drive potential lease rates down, and make the economics of producing new or restored space more difficult.

Projected Annual Expenditure Growth

Potential growth in expenditures determines much of the need for additional retail space in Fort Scott. The analysis above indicates that Fort Scott currently has potential for growth in specific market sectors. In addition, niche retail businesses do not compete directly with mass retailers: for example, the city's large community of professional photographers is a unique, destination business sector that attracts patrons from around the region.

Additional retail potential is generated by two factors: (1) increases generated by population growth and (2) increases in market share in specific sectors. **Table 5.15** (step 1) calculates total potential retail demand by multiplying projected population by per capita retail expenditures. Expenditures specifically made in Fort Scott are then computed by applying capture rates – that is the percentage of spending generated by these markets that takes place in the city. The result is approximately 66,000 square feet of additional retail space by 2013. The bulk of the demand is split between the primary and secondary markets. The projection model presumes that retail spending for the secondary market will not experience change in increment spending from 2008 and 2013. The proportion of growth in the secondary market will occur mostly in Fort Scott.

Table 5.15 relates increases in projected in-city consumer spending to retail space demand by calculating the average sales yield of retail space in Fort Scott, using an estimated sales yield of $320 per square foot, based on averages contained in the Urban Land Institute's (ULI) Dollars and Cents of Shopping Centers, 2008.

Future Commercial Land Needs

Table 5.16 indicates two methods of analyzing commercial demand based on current land use characteristics and population change. The first technique, or population proportion method, uses population change and the city's historic and projected amount of commercial land use per unit of population to project future demand. The second looks uses the current ratio of commercial and residential land use projected over 30 years. Both are ultimately functions of population change over time, and suggest a potential designation of about 20 acres of new commercial land. Virtually all of this land should be assigned to the three primary business centers in the US 69 study area.

These examples should be used as a baseline for measuring the market-based analysis contained in this section. The analysis above indicated a five-year potential demand for about 66,000 square feet of new retail space. Some of this space may be absorbed in downtown storefronts, but most will occur in more auto-oriented settings in the South National or South Main districts. Assuming that about 10,000 square feet of this demand is absorbed in existing downtown buildings, the remaining 56,000 square feet is developed in lower-intensity settings with a floor area ratio (FAR) of about 0.25. (Floor area ratio is a measure of development intensity, and is the quotient of building area divided by site area. Thus, a 25,000 square foot building on a 100,000 square foot site has an FAR of 0.25). Based on this assumption, the projected five-year demand requires about 5.14 acres of new commercial land. If this demand increase is replicated every five years, the city will absorb about 10.3 acres of commercial land per decade, or about 31 acres over the 30-year planning period. This suggests a reasonable level of consistency among these techniques. The land use scenario presented in this chapter is consistent with this demand and with the principles and opportunities identified in Part One.

THE INDUSTRIAL MARKET

Fort Scott is an important regional employment center and the city and county industrial park south on US 69 has become a major industrial concentration. The continued improvement of US 69 as a multi-lane, limited access facility improves the city's ability to attract new industry, and the corridor concept should include both land and infrastructure to support major business development. **Table 5.17** shows the existing inventory of land in industrial use, categorized by location in the "traditional" city and the expanded study area, including the industrial park. The broader study area includes about twice the industrial area of the established town. Assuming an average floor area ratio for industrial land of 0.1 to 0.15, Fort Scott has between 1.4 and 2.1 million square feet of industrial building area. In addition, the city's ratio of over 4 acres of industrial land per 100 residents is very high among comparable communities, again suggesting a substantial industrial role

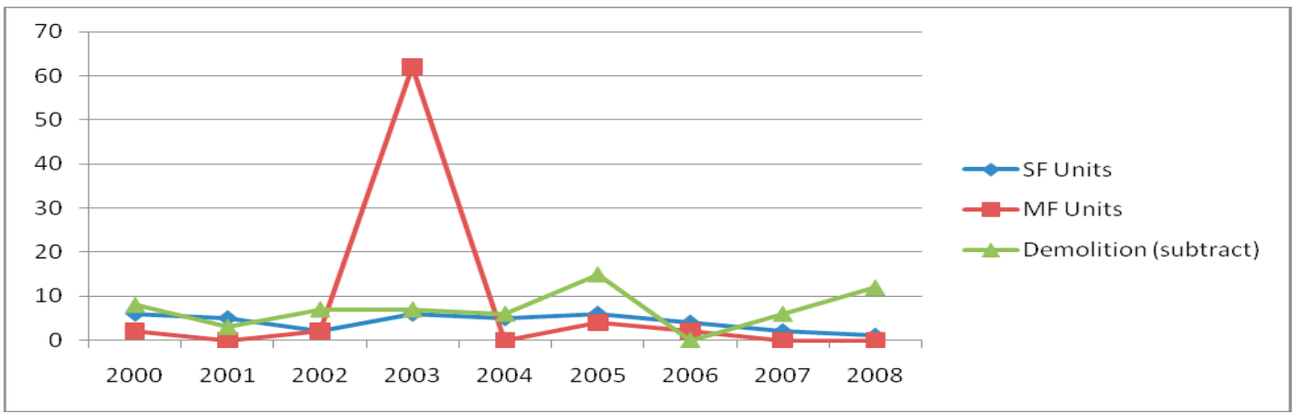


Figure 5.6 Building Permits between 2000 and 2008 in Fort Scott, KS.

Table 5.20 **Required Residential Land, 2010-2040**

2010-2020	% of Demand	Units	Gross Density (du/A)	Land Needs	Designated Land (x2)
Single Family Detached	45%	54	3	18	36
Single Family Attached	30%	36	6	6	12
Multi-family	25%	31	12	3	6
Total	**100%**	**121**		**27**	**54**
2020-2030					
Single Family Detached	45%	53	3	18	36
Single Family Attached	30%	35	6	6	12
Multi-family	25%	29	12	3	6
Total	**100%**	**117**		**27**	**54**
2030-2040					
Single Family Detached	45%	51	3	17	34
Single Family Attached	30%	34	6	6	12
Multi-family	25%	28	12	3	6
Total	**100%**	**113**		**26**	**52**
Total 2010-2040		**206**		**80**	**160**

in the city's economy. A more typical standard among peer communities is about 2 acres of industrial land per 100 residents.

Future Industrial Land Needs

Future industrial needs are difficult to project and traditional population-based forecasting methods are only a starting point for planning. New business starts, diversification, expansion and downsizing, access, and recruitment are more important to industrial land demand than population growth. In addition, a single industry can require an extremely large parcel to meet its needs. **Table 5.18** uses population-based methodologies similar to those used for commercial land, suggesting a future assignment of 58 to 72 acres future industrial development. However, industrial land policy should be flexible enough to respond to very large users. The future land use scenario, guided by the opportunities and strategies presented in Part One, provides this flexibility.

THE RESIDENTIAL MARKET

While residential development is the largest user of space in Fort Scott, it is a less important factor in the immediate US 69 study area where most land is either built up or more suited to non-residential uses. However, the study area does provide some opportunity sites. This section considers the need for future residential land in the city.

Housing Construction Trends

Table 5.5 and **Figure 5.6** illustrate building permit activity in Fort Scott from 2000 to 2008. Single-family development remained constant during the past decade, while multi-family development peaked in 2003 with the completion of some major apartment projects.

Housing Development Demand

Residential projections are based on a ten-year demand and broken down in five-year increments. **Table 5.7** displays population projections based upon a 0.25% compound annual growth rate, producing a projected population of 8,100 in 2020 and 8,514 in 2040. **Table 5.19** projects housing development needs in Fort Scott to 2040, based on this forecast. The demand model assumes a stable household size and declining vacancy rate as substandard units leave the housing supply. The analysis indicates an average annual demand for about 12 new units.

Table 5.20 includes a calculation of residential land needs based on the following assumptions:

Residential Development Demand

Industrial and business park development

- Occupancy split in Fort Scott will be 60% owner, 40% renter. In 2008, Fort Scott's owner/renter split was 62%/38%.
- For owner occupied housing, about ¾ (or 45% of total unit demand) will be in conventional large to medium lot size single-family detached homes; and ¼ (or about 15% of total unit demand) will be in small-lot single-family or attached configurations. Average gross density is 3 units/acre for single-family detached and 6 units/acre for small-lot or attached units.
- For rental occupied housing, about 3/8 (or 15% of total unit demand) will be in attached units such as townhomes and 5/8 (or about 25% of total demand) will be in multifamily units. Average gross density is 6 units/acre for attached units and 12 units/acre for multifamily units.

About 80 acres are needed to meet future demand. In a community-wide land use plan, about twice the hard demand, or 160 acres, should be designated for residential development. The US 69 study area will accommodate some, but not all, of this citywide demand. Some housing demand may also be satisfied by unconventional housing settings, such as upper levels of downtown buildings or infill sites in established neighborhoods.

A FUTURE LAND USE SCENARIO

Figure 5.7 and **Figure 5.8** present a future land use scenario for the 30-year period between 2010 and 2040, based on these citywide demands and the opportunities and strategies presented in Part One. The programmatic ingredients of this scenario include:

- About 30 acres of land for commercial use, most of which will be furnished by new development or more intensive development within the US 69 study area.
- A minimum of 72 acres of land for industrial use, although actual demand be greater, depending on the success of economic development efforts and the ability of an upgraded US 69 to attract new business development. Almost all of this industrial or business park demand will be accommodated within the US 69 study area because of its superior highway and rail access.
- About 160 acres of residential land. Part of this demand will be met on suitable sites in the study area, but much will occur in other parts of the city.

Features of the land use scenario include the following:

- **Commercial development** will initially occur on new development and reuse sites in the South Main corridor between 18th Street and Jayhawk Road; on development sites in the South National district, created by more efficient circulation and land use patterns; and with increased street-level storefront occupancy in the downtown district. Longer-term development may extend east of US 69 with the creation of a local street network, and in a cluster around the Jayhawk Road intersection. However, city and county land use policy should prevent an elongated commercial strip south of Jayhawk Road along US 69. Commercial uses could develop at major intersections south of Jayhawk Road.
- **Industrial and business park development** should continue development of the Fort Scott Industrial Park corridor between US 69 and the BNSF Railway south to the K-7 interchange. Other areas include infill sites south of an extended 18th Street between the highway and railroad, and between Margrave Street and the railroad between 23rd Street and Jayhawk Road.
- **Residential development** should occur on the west side of US 69 between 23rd Street and the Cigna/Mercy joint campus between the highway and Horton Street, and on infill and redevelopment sites within the historic city. High quality but high-intensity adjacent development, including the hospital, Cigna campus, apartment development, and Fort Scott Community College make these ideal sites for medium and high-density urban residential uses. Residential development is also likely in the Margrave corridor south of East National Avenue. However, the majority of Fort Scott's future residential development will occur outside the US 69 study area.
- **Supporting trail and greenway development** would continue along the Buck Run drainage corridor between US 69 and 23rd Street, leading to a pedestrian/bicycle connection over the railroad as part of a 23rd Street grade separation. This greenway would connect to the principal Buck Run Greenway, described in Chapter Six. This scenario also proposes a neighborhood park between East National Avenue and an extended 18th Street to serve residential areas on the east side of US 69. This park would have a pathway link to the Buck Run Greenway.
- **Land south of Jayhawk Road** on the east side of U.S. 69 is planned for industrial uses, while the west side may experience some commercial development at intersections. The surrounding area is anticipated to remain open space.

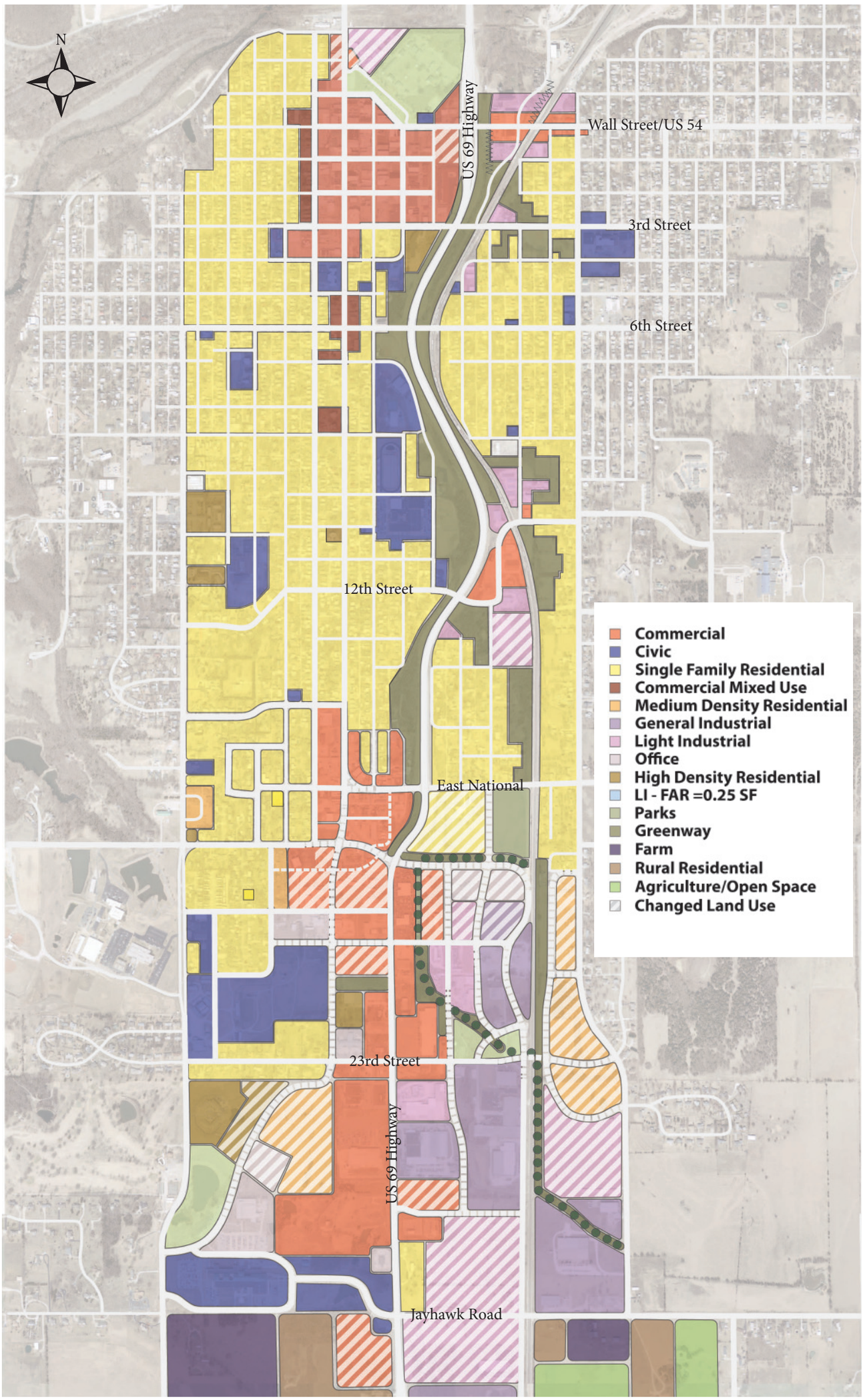


Figure 5.7 2040 Future Land Use Plan within Study Area

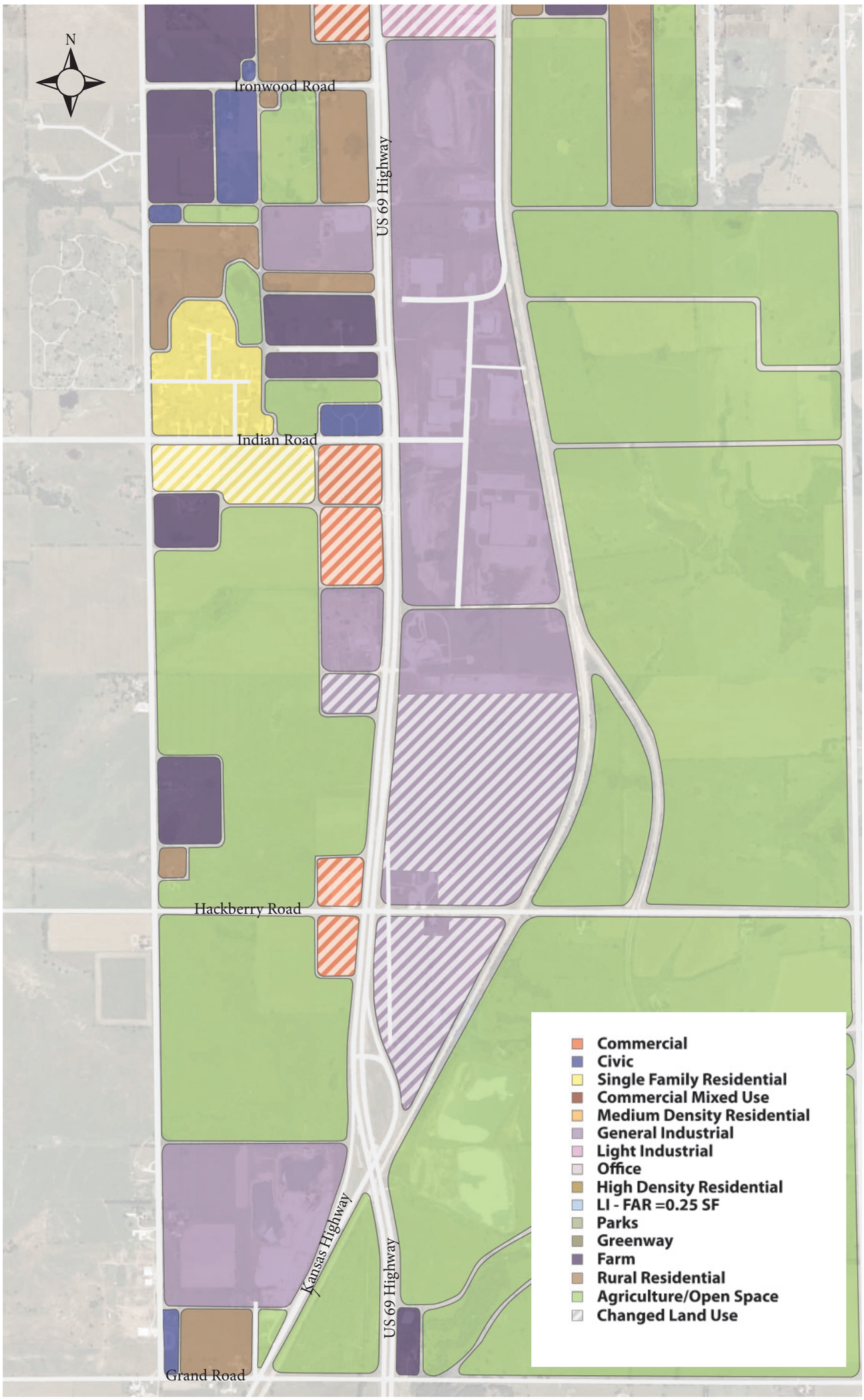


Figure 5.8 Future Land Use Plan (south)

Table 5.15 **Potential Demand for Retail Space in Fort Scott 2013 (auto & non-store retail withheld)**

	Primary	Secondary	Total
STEP 1A: PROJECTING TOTAL DEMAND IN 2013			
2008 Estimated Demand	$89,305,340	$191,181,711	$280,487,051
2008 Estimated Population	7,948	8,167	16,115
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Existing Gap (difference: demand-supply)	$14,565,391	$82,599,100	$97,164,491
Future Gap (City: $64,432,319 - $54,694,890)	$21,991	$0 (sustained)	$21,991
Total Gap (City: $370,555,714 - $443,301,366)	$14,587,382	$82,599,100	$97,186,482
STEP 3B: CALCULATING MARION'S SHARE OF THE GAP			
Total Gap	14,587,382	$82,599,100	$97,186,482
Marion Capture Rate	60%	15%	
Share of Gap	**$8,752,429**	**$12,389,865**	**$21,142,294**
STEP 5: DETERMINING SQUARE FOOTAGE			
Share of Gap	**$8,752,429**	**$12,389,865**	**$21,142,294**
Total Increment	**$112,843**	**$0 (sustained)**	**$112,843**
Sales Yield Per Square Foot	$320	$320	
Citywide commercial Space Demand (SF)	27,704	38,718	66,422

markets were less than 1% of the total retail sales within the 90-mile radius tertiary market area.

The primary market area for Fort Scott includes retail spending within its city limits. As shown in **Table 5.14**, Fort Scott's primary market area produced about $97 million in retail sales in 2008, while its population spent over $118 million. The "balance of trade deficit" of $21 million in sales indicates that consumers are spending substantial resources outside the city. Remedying this deficit by retaining more local expenditures would significantly improve the city's economy and presents a major growth opportunity.

Table 5.15 identifies the gap between consumer demand (expenditures) and retail sales within the primary and secondary trade areas. A positive value results from demand exceeding supply, indicating a leakage of consumer dollars out of the city. Thus, residents in the specific market area are spending more on a given item than local businesses are selling. For example, for furniture sales, primary market area consumers spent $1.8 million more on furniture than local retailers sold, indicating that local consumers are buying a significant amount of furniture outside of the city. This may demonstrate an opportunity for a local business to capture these currently exported expenditures. A negative value, on the other hand, indicates that sales of an item exceed local demand, indicating a positive balance of trade. For example, in 2008, retail sales for building materials and supplies exceeded expenditures by the local population by $149,392. This suggests a relative balance in the local market and a minor attraction of customers from the region.

Retail categories showing opportunities for potential growth for Fort Scott, include:

- *Health and Personal Care Stores.* Health and Personal Care Stores reported nearly $2.8 million in retail sales. Nearly all of the demand is for pharmacies and drug stores ($6.9 million), leaving a gap of $4 million.
- *Clothing and Accessory Stores.* Sales reached $1.2 million, while the demand was $4.3 million, representing nearly $3 million in retail leakage.
- *Food and Beverage Stores.* While sales reached $13.2 million in 2008, expenditures of about $15 million produced leakage of about $1.8 million.
- *General Merchandise.* Current demand and supply is well-balanced for department stores. Walmart is a significant contributor to the sales and helps attract regional households to Fort Scott.

Table 5.16 Required Commercial Land, 2008-2030

Population Proportion Method	2010	2020	2030	2040	Conversion Need	Designated Land (x1.5)
Projected Population	7,940	8,100	8,305	8,514		
Commercial Use/100 res.	1.88	1.88	1.88	1.88		
Projected Commercial Use (acres)	149	152	156	161	12.0	18.0
Residential Use Proportion Method						
Residential Land (acres)	1,006	1,033	1,060	1,087		
Commercial/Residential Ratio	0.15	0.15	0.15	0.15		
Projected Commercial Use (acres)	150	154	159	163	13.0	20.0

Table 5.17 Industrial Land in the Fort Scott Study Area

	Traditional City	Expanded Study Area (including industrial park)	Total	Acres Per 100 People
Industrial	**115.3**	214.9	**330.2**	**4.16**
General Industrial	19.1	**45.6**	**64.7**	**0.84**
Light Industrial/Distribution	96.2	169.3	**265.5**	**3.32**

Source: RDG Planning & Design, 2009

Table 5.18 Estimated Industrial Land Requirements, 2008-2030

Population Proportion Method	2008	2020	2030	2040	Conversion Need	Designated Land (x3)
Projected Population	7,940	8,100	8,305	8,514		
Industrial Use/100 res.	4.16	4.16	4.16	4.16		
Projected Industrial Use (acres)	330.25	336.95	345.47	354.20	23.96	71.87
Residential Use Proportion Method						
Residential Land (acres)	906.35	924.39	937.94	959.57		
Industrial/Residential Ratio	0.364368	0.364368	0.364368	0.364368		
Projected Industrial Use (acres)	330.25	336.82	341.76	349.64	19.39	58.17

Source: RDG Planning & Design, 2009

Table 5.19 Projected Housing Development Demand

	2010	2015	2020	2025	2030	2035	2040	Total
Population at the End of Period	7,900	7,999	8,100	8,201	8,305	8,409	8,514	
Household Population at End of Period	7,616	7,711	7,808	7,906	8,006	8,106	8,208	
Average People/Household	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
Household demand at End of Period	3,311	3,353	3,395	3,437	3,481	3,524	3,569	
Projected Vacancy Rate	11.0%	10.0%	9.5%	9.0%	8.5%	8.0%	8.0%	
Unit Needs at End of Period	3,720	3,725	3,751	3,777	3,803	3,833	3,879	
Replacement Need		50	40	35	30	25	15	
Cumulative Need		55	66	61	56	55	61	354
Average Annual Construction		11	13	12	11	11	12	12

Again, **Table 5.14** presents retail demand and supply. The figures in the Opportunity/Gap column are used later in this analysis to calculate potential retail space. Auto sales and non-store retailers are withheld for the purpose of projecting future retail space square footage.

Despite these markets showing opportunities for growth, development in Fort Scott faces several challenges, including:

1. *Access.* Visibility and access is critical for any commercial development. With greater volume and regional travel, businesses along US 69 have greater opportunities to attract incidental customers than the more destination-based Downtown or South National districts. Along with good access and visibility, a regional destination attracts both customers for itself and secondary customers for other businesses. For example, a customer from out-of-town buying a car at a Fort Scott dealership may eat lunch or dinner at a Fort Scott restaurant.

2. *Rooftops*. Service-related and retail commercial uses typically target household growth before breaking ground. Features that they consider include the rate of increase of households in an area and median household income levels. Thus, the ability of a community to grow is critical to commercial supply and demand. Fort Scott, on the other hand, has experienced at least some population loss within its central city. This is somewhat moderated from a retail perspective by growth in the surrounding county. Yet distance from the destination does weaken allegiances and top-of-mind preferences to some degree.

3. *Market Competition.* Downtown has a large amount of available storefront space. Also, the 2008-09 economic downturn has had a palpable effect on local and specialty retailers. A large supply of available space can drive potential lease rates down, and make the economics of producing new or restored space more difficult.

Projected Annual Expenditure Growth

Potential growth in expenditures determines much of the need for additional retail space in Fort Scott. The analysis above indicates that Fort Scott currently has potential for growth in specific market sectors. In addition, niche retail businesses do not compete directly with mass retailers: for example, the city's large community of professional photographers is a unique, destination business sector that attracts patrons from around the region.

Additional retail potential is generated by two factors: (1) increases generated by population growth and (2) increases in market share in specific sectors. **Table 5.15** (step 1) calculates total potential retail demand by multiplying projected population by per capita retail expenditures. Expenditures specifically made in Fort Scott are then computed by applying capture rates – that is the percentage of spending generated by these markets that takes place in the city. The result is approximately 66,000 square feet of additional retail space by 2013. The bulk of the demand is split between the primary and secondary markets. The projection model presumes that retail spending for the secondary market will not experience change in increment spending from 2008 and 2013. The proportion of growth in the secondary market will occur mostly in Fort Scott.

Table 5.15 relates increases in projected in-city consumer spending to retail space demand by calculating the average sales yield of retail space in Fort Scott, using an estimated sales yield of $320 per square foot, based on averages contained in the Urban Land Institute's (ULI) Dollars and Cents of Shopping Centers, 2008.

Future Commercial Land Needs

Table 5.16 indicates two methods of analyzing commercial demand based on current land use characteristics and population change. The first technique, or population proportion method, uses population change and the city's historic and projected amount of commercial land use per unit of population to project future demand. The second looks uses the current ratio of commercial and residential land use projected over 30 years. Both are ultimately functions of population change over time, and suggest a potential designation of about 20 acres of new commercial land. Virtually all of this land should be assigned to the three primary business centers in the US 69 study area.

These examples should be used as a baseline for measuring the market-based analysis contained in this section. The analysis above indicated a five-year potential demand for about 66,000 square feet of new retail space. Some of this space may be absorbed in downtown storefronts, but most will occur in more auto-oriented settings in the South National or South Main districts. Assuming that about 10,000 square feet of this demand is absorbed in existing downtown buildings, the remaining 56,000 square feet is developed in lower-intensity settings with a floor area ratio (FAR) of about 0.25. (Floor area ratio is a measure of development intensity, and is the quotient of building area divided by site area. Thus, a 25,000 square foot building on a 100,000 square foot site has an FAR of 0.25). Based on this assumption, the projected five-year demand requires about 5.14 acres of new commercial land. If this demand increase is replicated every five years, the city will absorb about 10.3 acres of commercial land per decade, or about 31 acres over the 30-year planning period. This suggests a reasonable level of consistency among these techniques. The land use scenario presented in this chapter is consistent with this demand and with the principles and opportunities identified in Part One.

THE INDUSTRIAL MARKET

Fort Scott is an important regional employment center and the city and county industrial park south on US 69 has become a major industrial concentration. The continued improvement of US 69 as a multi-lane, limited access facility improves the city's ability to attract new industry, and the corridor concept should include both land and infrastructure to support major business development. **Table 5.17** shows the existing inventory of land in industrial use, categorized by location in the "traditional" city and the expanded study area, including the industrial park. The broader study area includes about twice the industrial area of the established town. Assuming an average floor area ratio for industrial land of 0.1 to 0.15, Fort Scott has between 1.4 and 2.1 million square feet of industrial building area. In addition, the city's ratio of over 4 acres of industrial land per 100 residents is very high among comparable communities, again suggesting a substantial industrial role

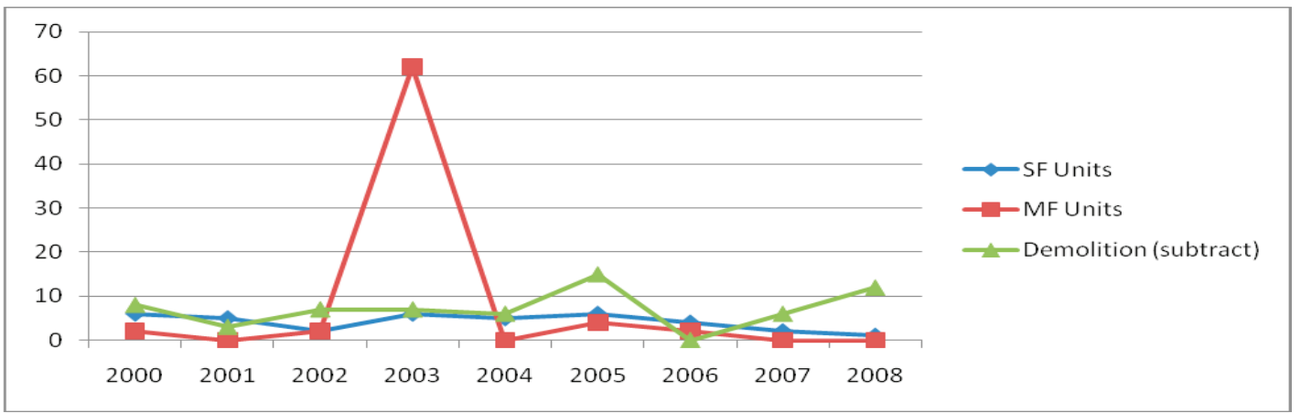

Figure 5.6 Building Permits between 2000 and 2008 in Fort Scott, KS.

Table 5.20 **Required Residential Land, 2010-2040**

2010-2020	% of Demand	Units	Gross Density (du/A)	Land Needs	Designated Land (x2)
Single Family Detached	45%	54	3	18	36
Single Family Attached	30%	36	6	6	12
Multi-family	25%	31	12	3	6
Total	**100%**	**121**		**27**	**54**
2020-2030					
Single Family Detached	45%	53	3	18	36
Single Family Attached	30%	35	6	6	12
Multi-family	25%	29	12	3	6
Total	**100%**	**117**		**27**	**54**
2030-2040					
Single Family Detached	45%	51	3	17	34
Single Family Attached	30%	34	6	6	12
Multi-family	25%	28	12	3	6
Total	**100%**	**113**		**26**	**52**
Total 2010-2040		**206**		**80**	**160**

in the city's economy. A more typical standard among peer communities is about 2 acres of industrial land per 100 residents.

Future Industrial Land Needs

Future industrial needs are difficult to project and traditional population-based forecasting methods are only a starting point for planning. New business starts, diversification, expansion and downsizing, access, and recruitment are more important to industrial land demand than population growth. In addition, a single industry can require an extremely large parcel to meet its needs. **Table 5.18** uses population-based methodologies similar to those used for commercial land, suggesting a future assignment of 58 to 72 acres future industrial development. However, industrial land policy should be flexible enough to respond to very large users. The future land use scenario, guided by the opportunities and strategies presented in Part One, provides this flexibility.

THE RESIDENTIAL MARKET

While residential development is the largest user of space in Fort Scott, it is a less important factor in the immediate US 69 study area where most land is either built up or more suited to non-residential uses. However, the study area does provide some opportunity sites. This section considers the need for future residential land in the city.

Housing Construction Trends

Table 5.5 and **Figure 5.6** illustrate building permit activity in Fort Scott from 2000 to 2008. Single-family development remained constant during the past decade, while multi-family development peaked in 2003 with the completion of some major apartment projects.

Housing Development Demand

Residential projections are based on a ten-year demand and broken down in five-year increments. **Table 5.7** displays population projections based upon a 0.25% compound annual growth rate, producing a projected population of 8,100 in 2020 and 8,514 in 2040. **Table 5.19** projects housing development needs in Fort Scott to 2040, based on this forecast. The demand model assumes a stable household size and declining vacancy rate as substandard units leave the housing supply. The analysis indicates an average annual demand for about 12 new units.

Table 5.20 includes a calculation of residential land needs based on the following assumptions:

Residential Development Demand

Industrial and business park development

- Occupancy split in Fort Scott will be 60% owner, 40% renter. In 2008, Fort Scott's owner/renter split was 62%/38%.
- For owner occupied housing, about ¾ (or 45% of total unit demand) will be in conventional large to medium lot size single-family detached homes; and ¼ (or about 15% of total unit demand) will be in small-lot single-family or attached configurations. Average gross density is 3 units/acre for single-family detached and 6 units/acre for small-lot or attached units.
- For rental occupied housing, about 3/8 (or 15% of total unit demand) will be in attached units such as townhomes and 5/8 (or about 25% of total demand) will be in multifamily units. Average gross density is 6 units/acre for attached units and 12 units/acre for multifamily units.

About 80 acres are needed to meet future demand. In a community-wide land use plan, about twice the hard demand, or 160 acres, should be designated for residential development. The US 69 study area will accommodate some, but not all, of this citywide demand. Some housing demand may also be satisfied by unconventional housing settings, such as upper levels of downtown buildings or infill sites in established neighborhoods.

A FUTURE LAND USE SCENARIO

Figure 5.7 and **Figure 5.8** present a future land use scenario for the 30-year period between 2010 and 2040, based on these citywide demands and the opportunities and strategies presented in Part One. The programmatic ingredients of this scenario include:

- About 30 acres of land for commercial use, most of which will be furnished by new development or more intensive development within the US 69 study area.
- A minimum of 72 acres of land for industrial use, although actual demand be greater, depending on the success of economic development efforts and the ability of an upgraded US 69 to attract new business development. Almost all of this industrial or business park demand will be accommodated within the US 69 study area because of its superior highway and rail access.
- About 160 acres of residential land. Part of this demand will be met on suitable sites in the study area, but much will occur in other parts of the city.

Features of the land use scenario include the following:

- **Commercial development** will initially occur on new development and reuse sites in the South Main corridor between 18th Street and Jayhawk Road; on development sites in the South National district, created by more efficient circulation and land use patterns; and with increased street-level storefront occupancy in the downtown district. Longer-term development may extend east of US 69 with the creation of a local street network, and in a cluster around the Jayhawk Road intersection. However, city and county land use policy should prevent an elongated commercial strip south of Jayhawk Road along US 69. Commercial uses could develop at major intersections south of Jayhawk Road.
- **Industrial and business park development** should continue development of the Fort Scott Industrial Park corridor between US 69 and the BNSF Railway south to the K-7 interchange. Other areas include infill sites south of an extended 18th Street between the highway and railroad, and between Margrave Street and the railroad between 23rd Street and Jayhawk Road.
- **Residential development** should occur on the west side of US 69 between 23rd Street and the Cigna/Mercy joint campus between the highway and Horton Street, and on infill and redevelopment sites within the historic city. High quality but high-intensity adjacent development, including the hospital, Cigna campus, apartment development, and Fort Scott Community College make these ideal sites for medium and high-density urban residential uses. Residential development is also likely in the Margrave corridor south of East National Avenue. However, the majority of Fort Scott's future residential development will occur outside the US 69 study area.
- **Supporting trail and greenway development** would continue along the Buck Run drainage corridor between US 69 and 23rd Street, leading to a pedestrian/bicycle connection over the railroad as part of a 23rd Street grade separation. This greenway would connect to the principal Buck Run Greenway, described in Chapter Six. This scenario also proposes a neighborhood park between East National Avenue and an extended 18th Street to serve residential areas on the east side of US 69. This park would have a pathway link to the Buck Run Greenway.
- **Land south of Jayhawk Road** on the east side of U.S. 69 is planned for industrial uses, while the west side may experience some commercial development at intersections. The surrounding area is anticipated to remain open space.

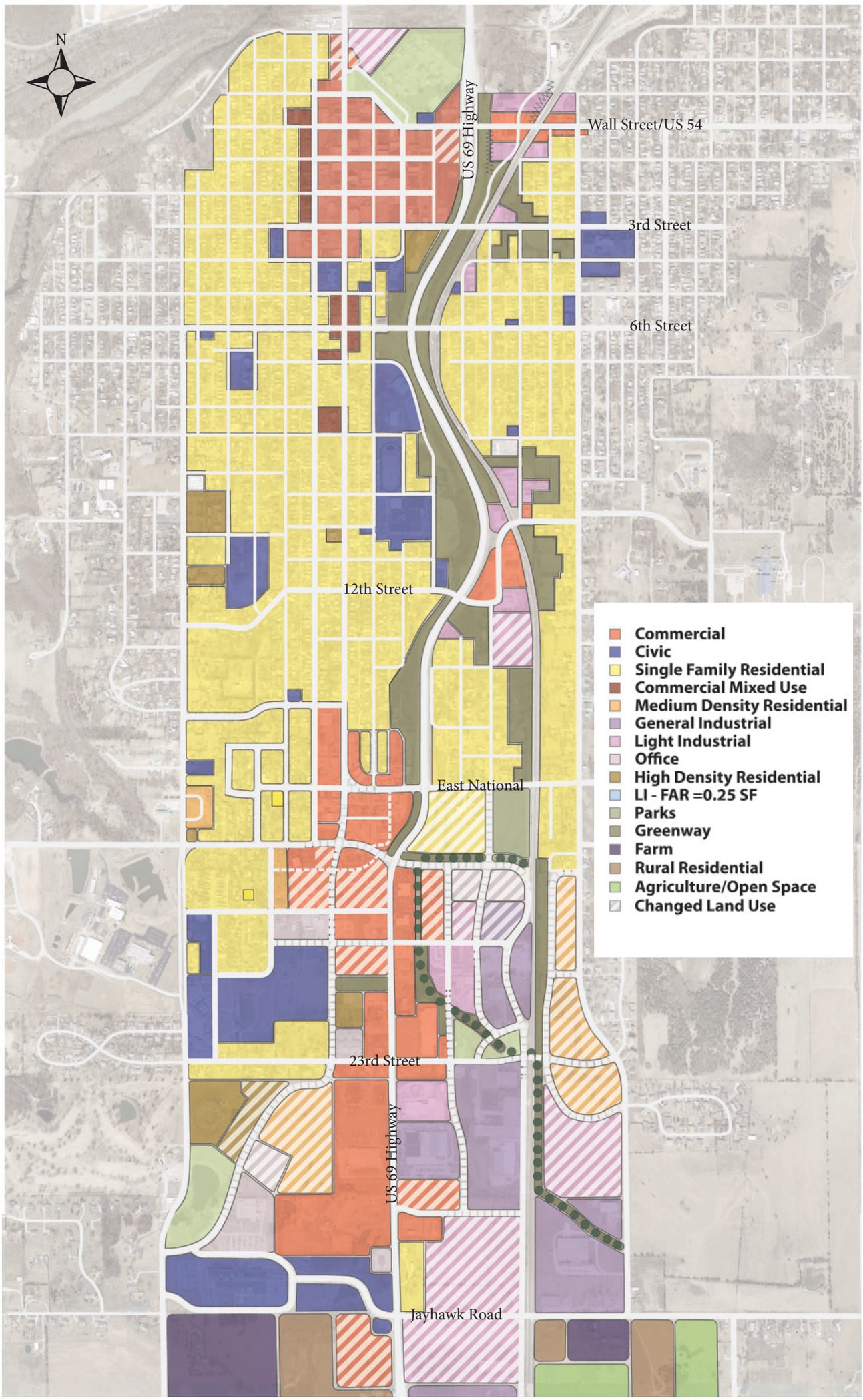

Figure 5.7 2040 Future Land Use Plan within Study Area

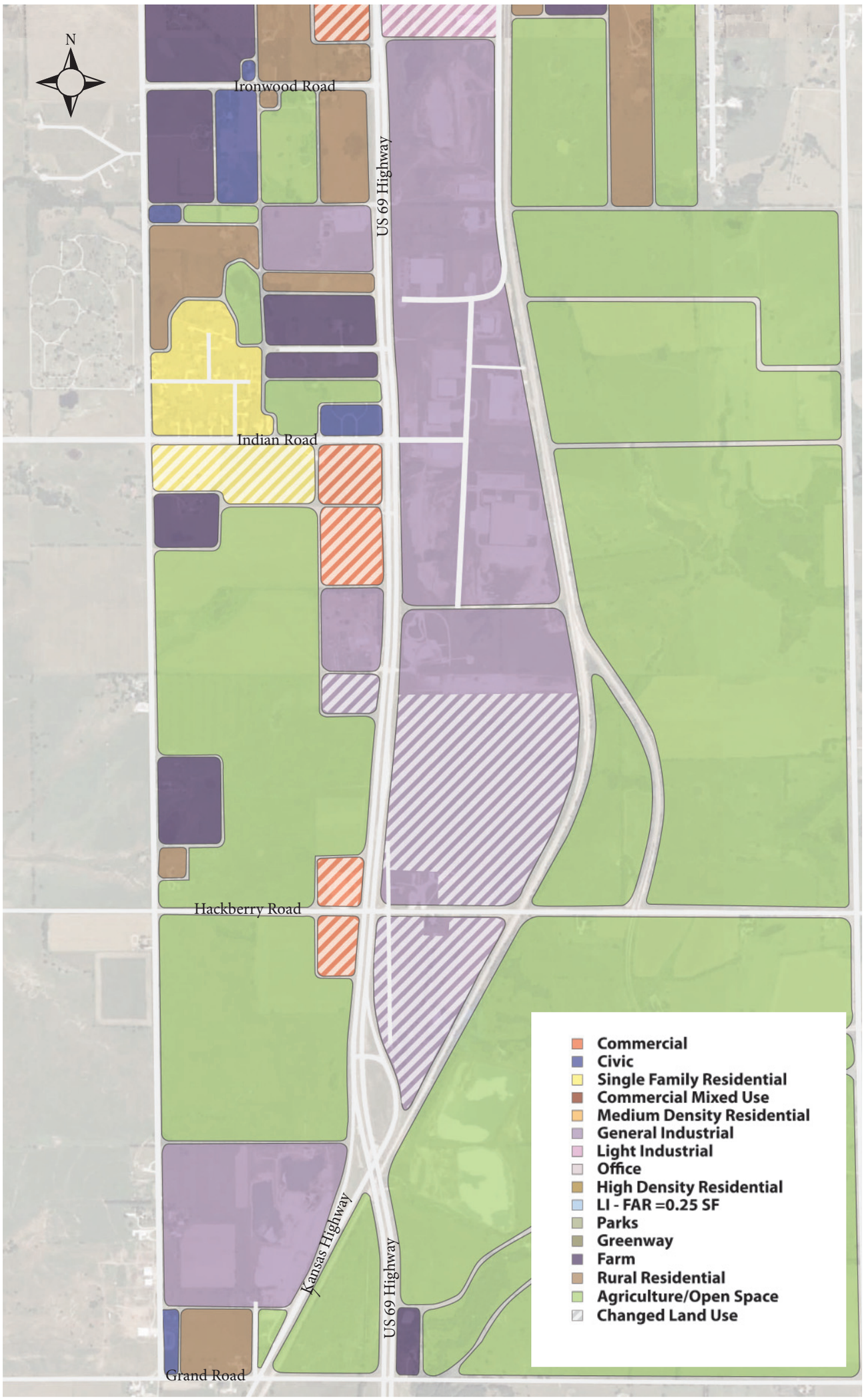

Figure 5.8 Future Land Use Plan (south)