



*US 69
Corridor
Management
Plan*

*Bourbon County
January 2010*

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





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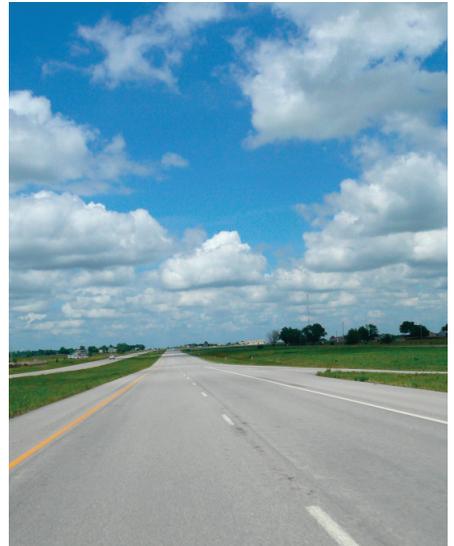
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Bourbon County, Kansas



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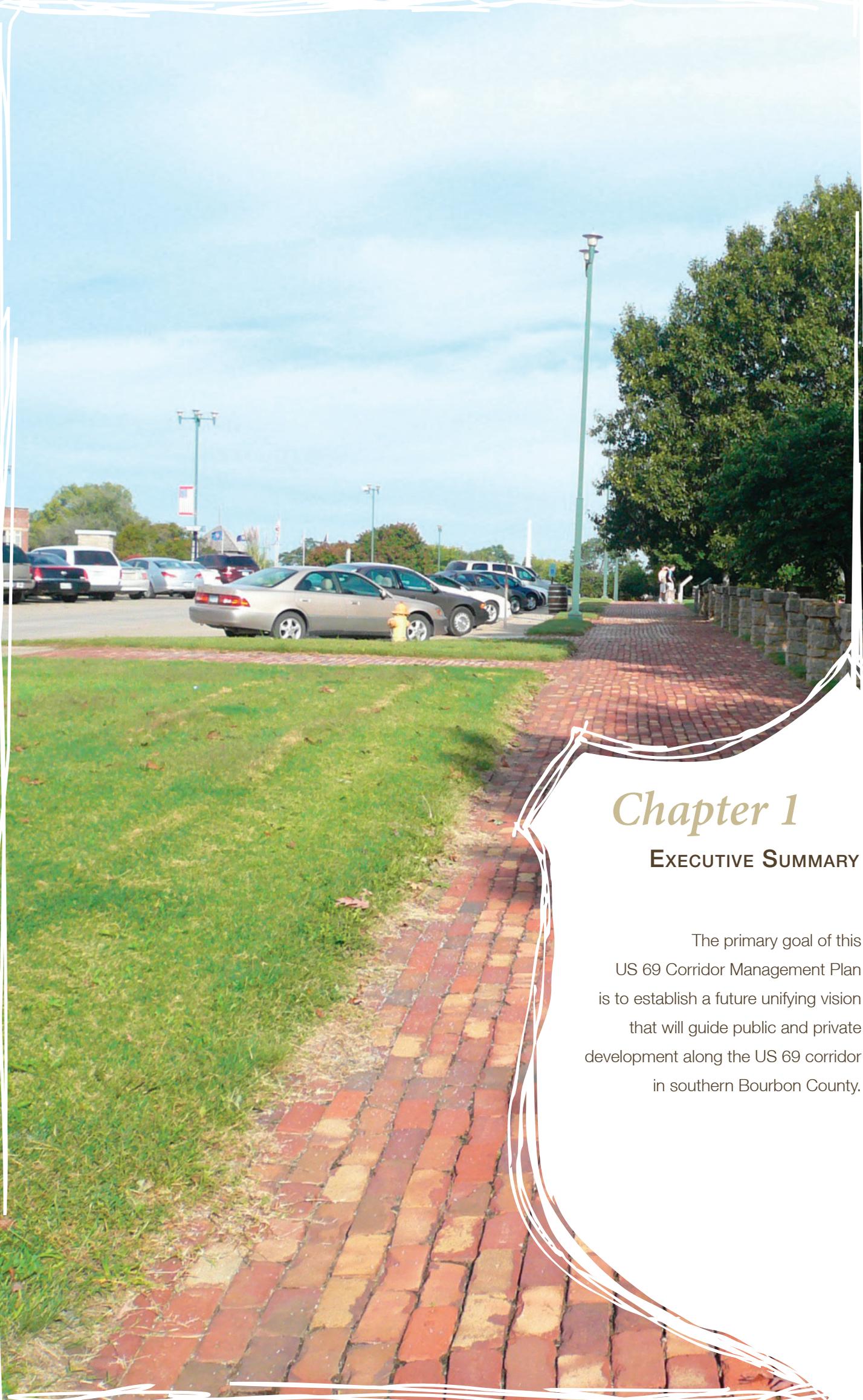
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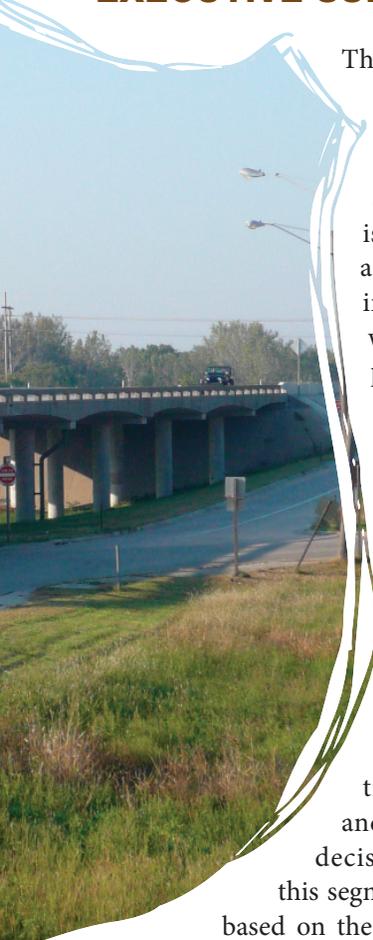


Chapter 1

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 op-

portunities 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 through 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.



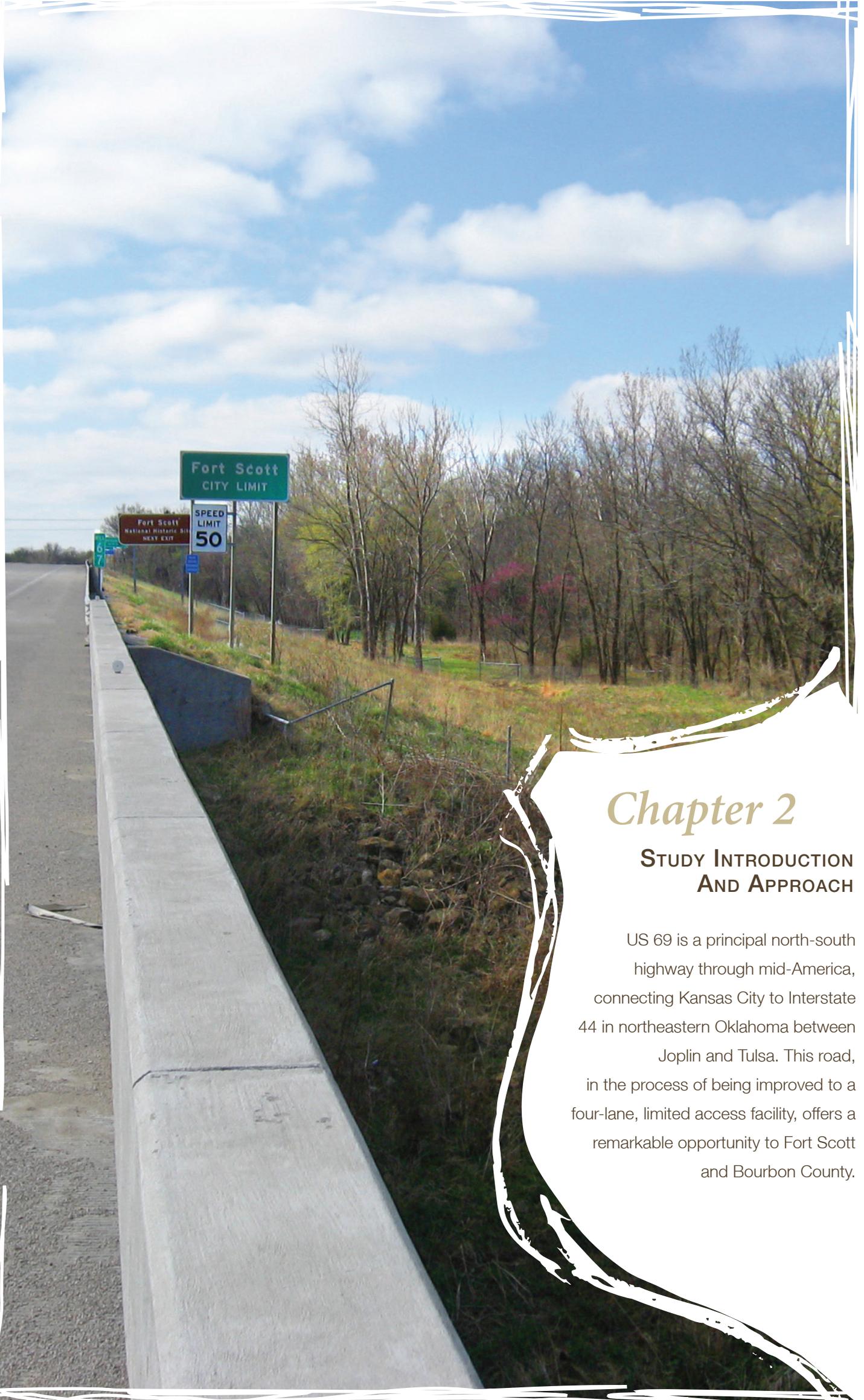
With development of the system improvements recommended by this plan, the US 69 corridor through Fort Scott and Bourbon County is anticipated to function at or above regional performance target thresholds through 2040. However, satisfaction of local and regional customers, along with external political 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 high-way through mid-America, connecting Kansas City to Interstate 44 in north-eastern 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 in-

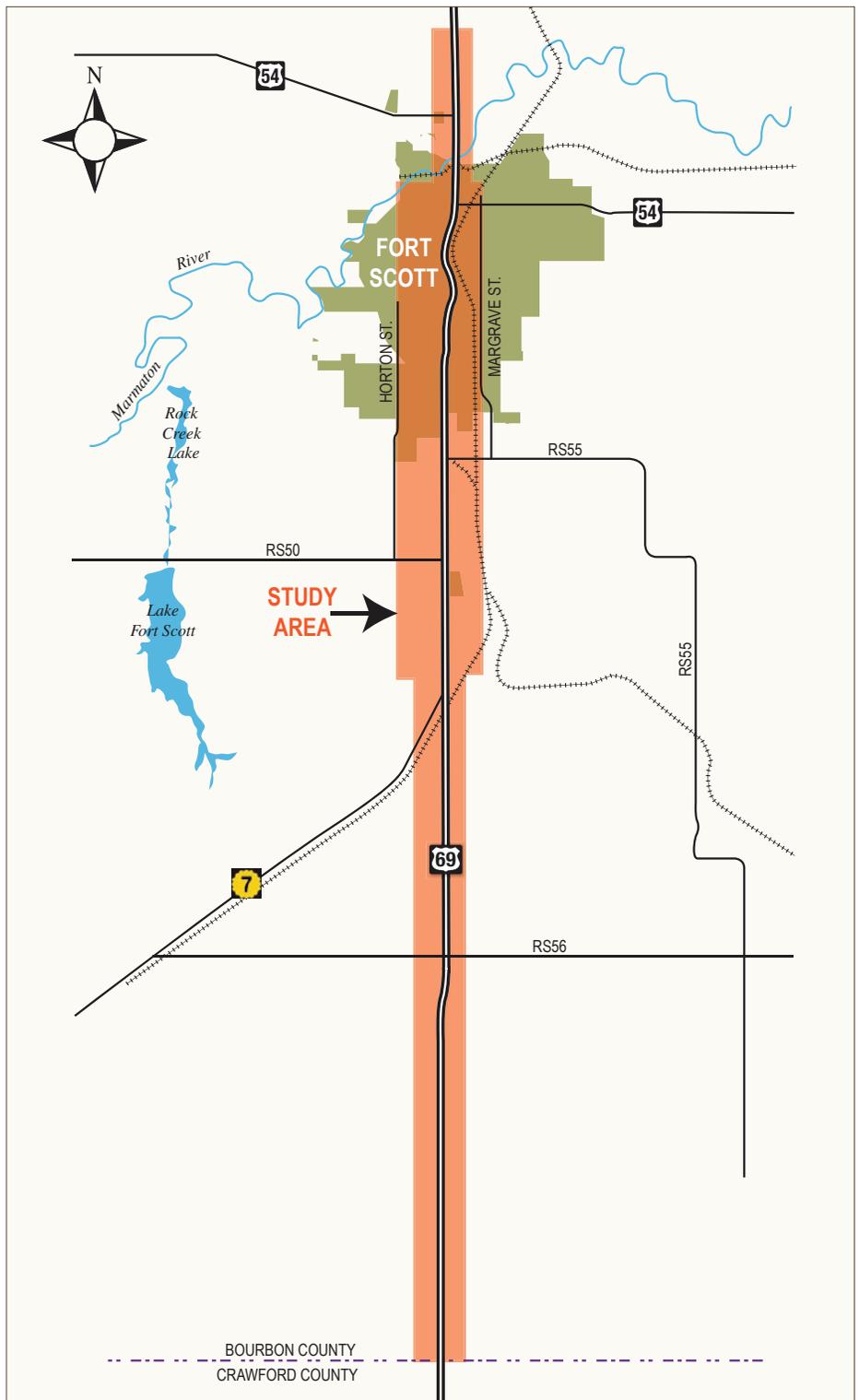


Figure 2.1 Study Area

cludes the local street system between Margrave and Horton Streets.

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 numer-

ous 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.

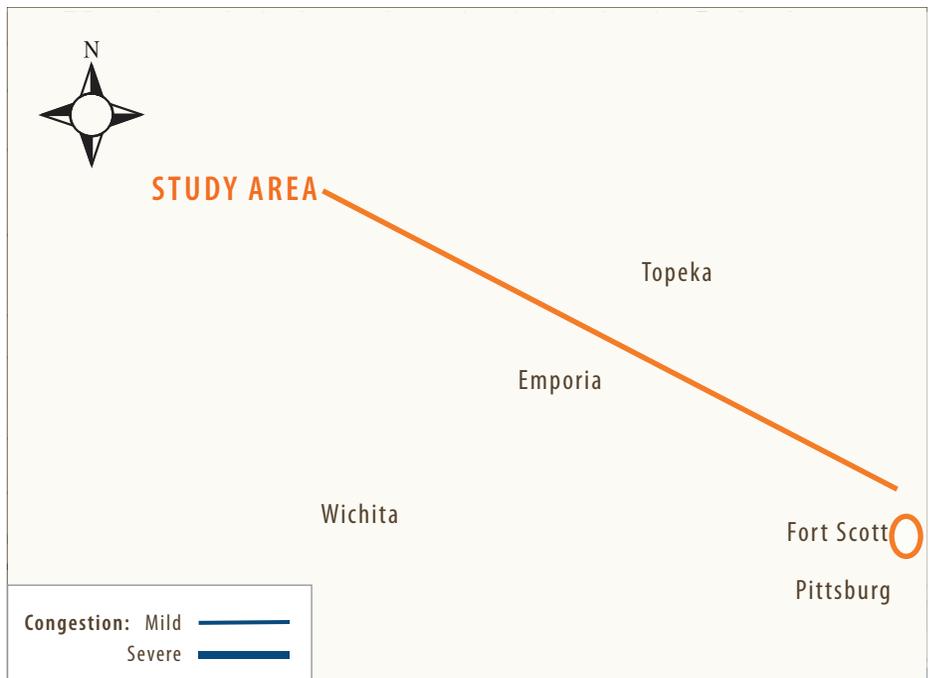


Figure 2.2 2008 KDOT LRTP Projected Highway Miles at or Nearing Congestion in 2030

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 exist-

ing 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.

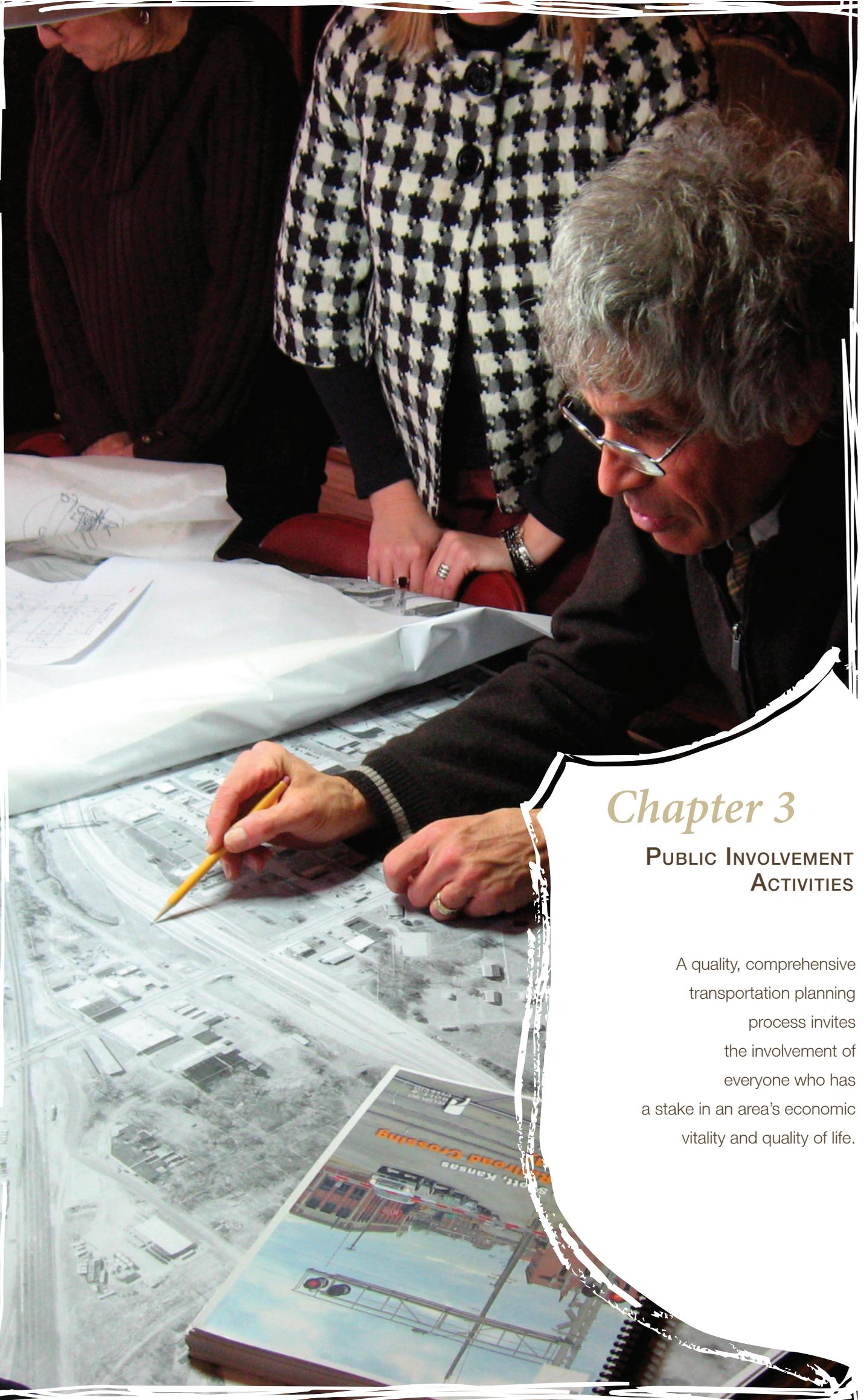
US 69 Corridor Management Plan Content

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





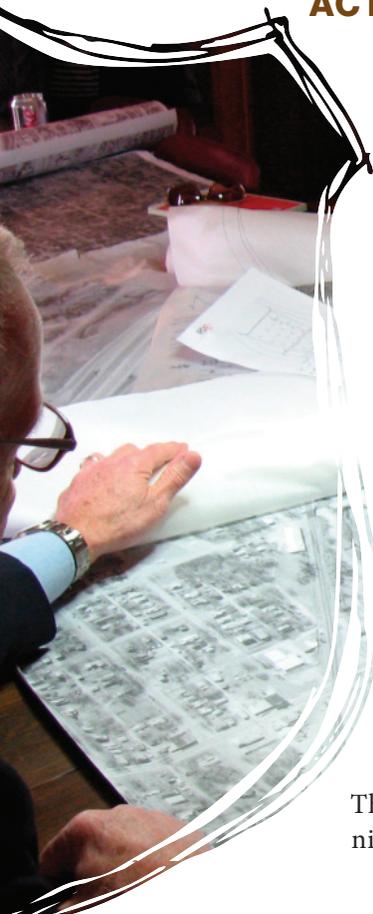


Chapter 3

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 avail-

able 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-

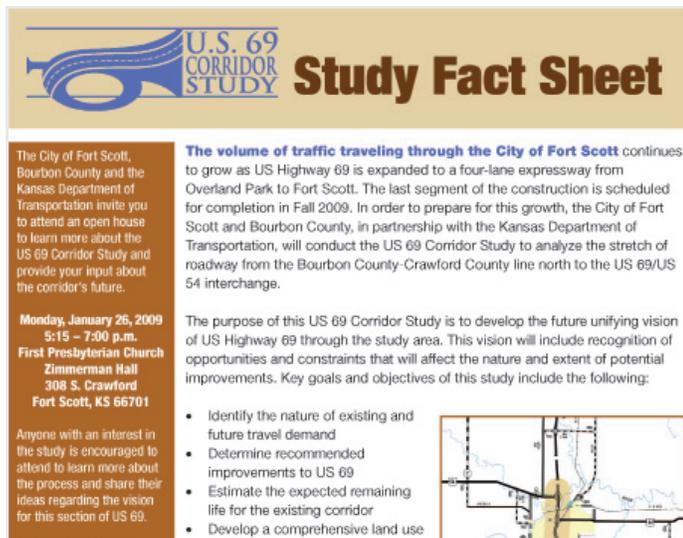
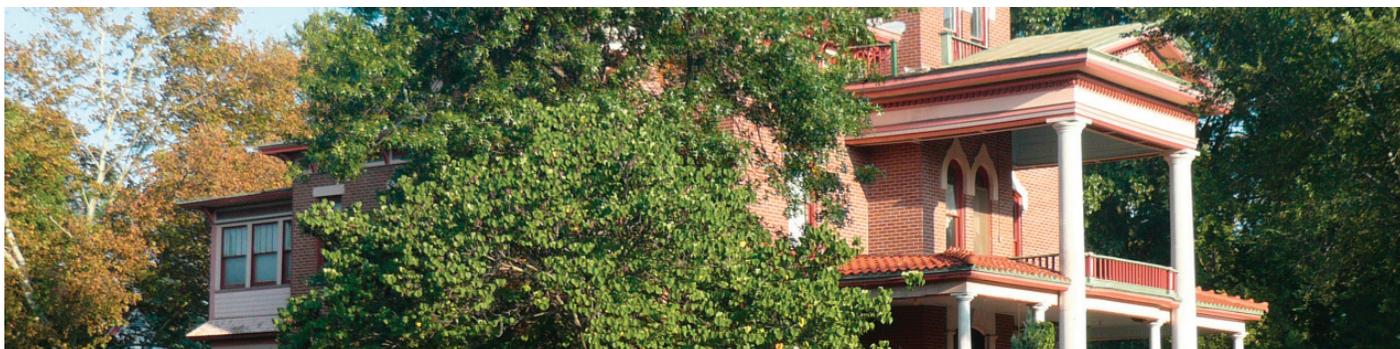


Figure 3.1 Study Newsletter



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



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 de-

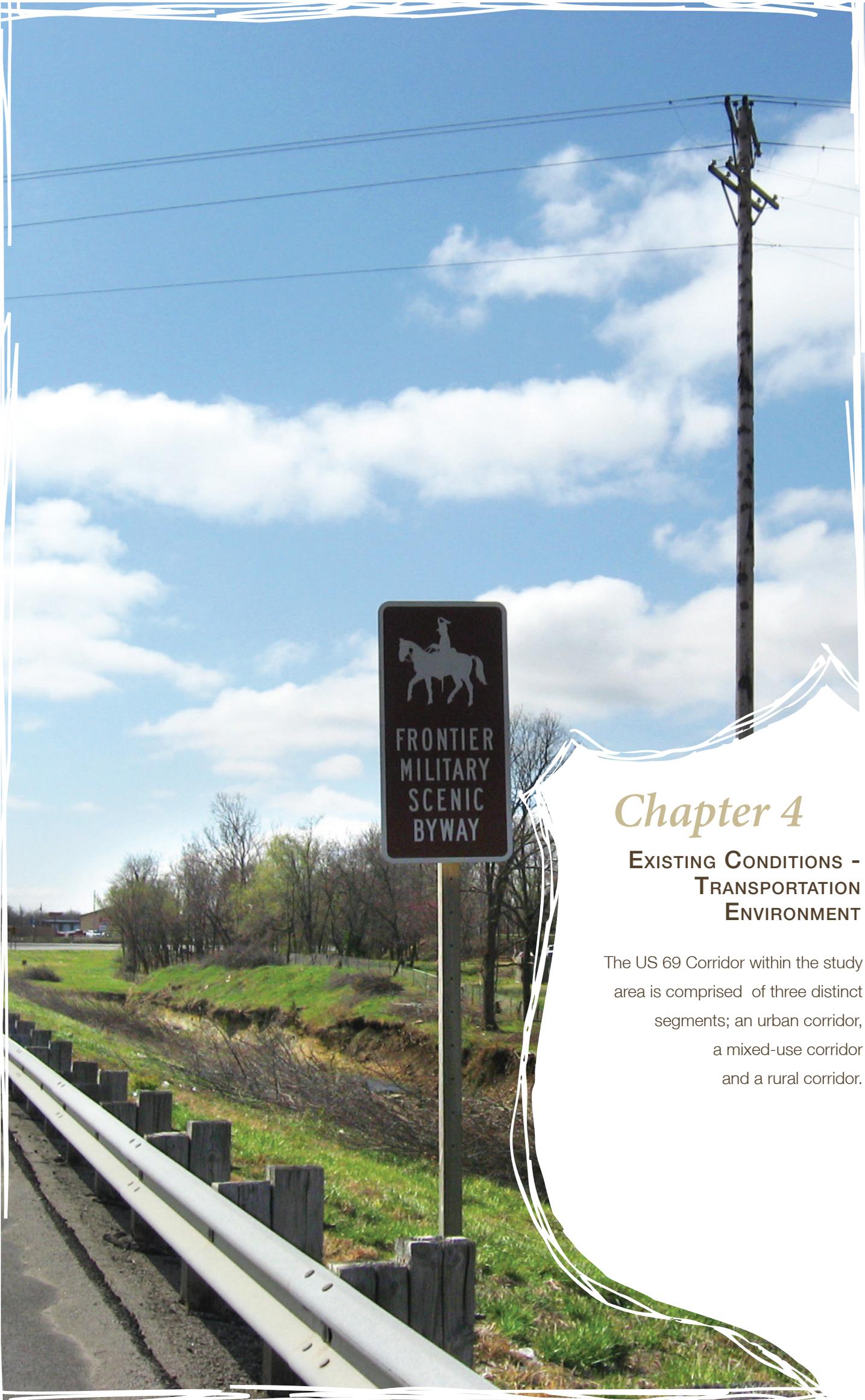
veloped during the course of the design studio workshops and presented at the open house meetings. Responses to the written comments received were addressed during the development of the recommended improvements.



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

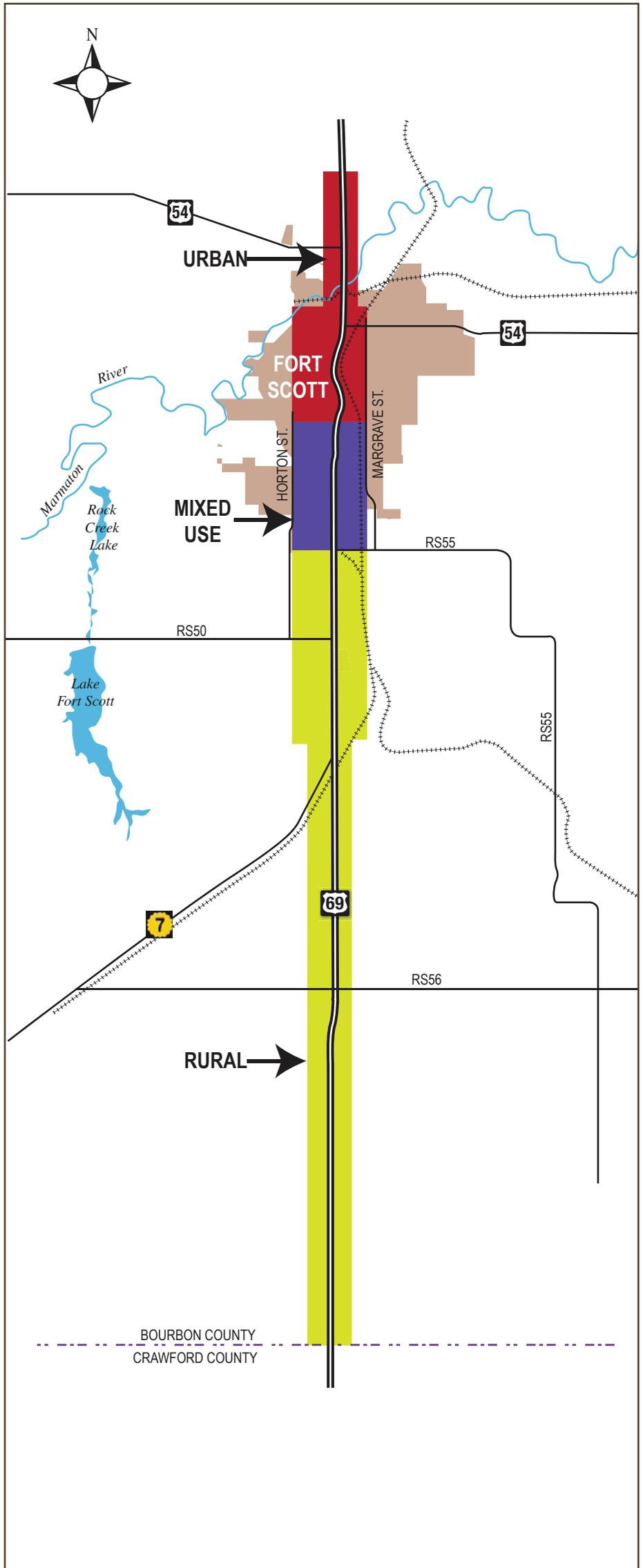


Figure 4.1 US Highway 69 Context Based Segments

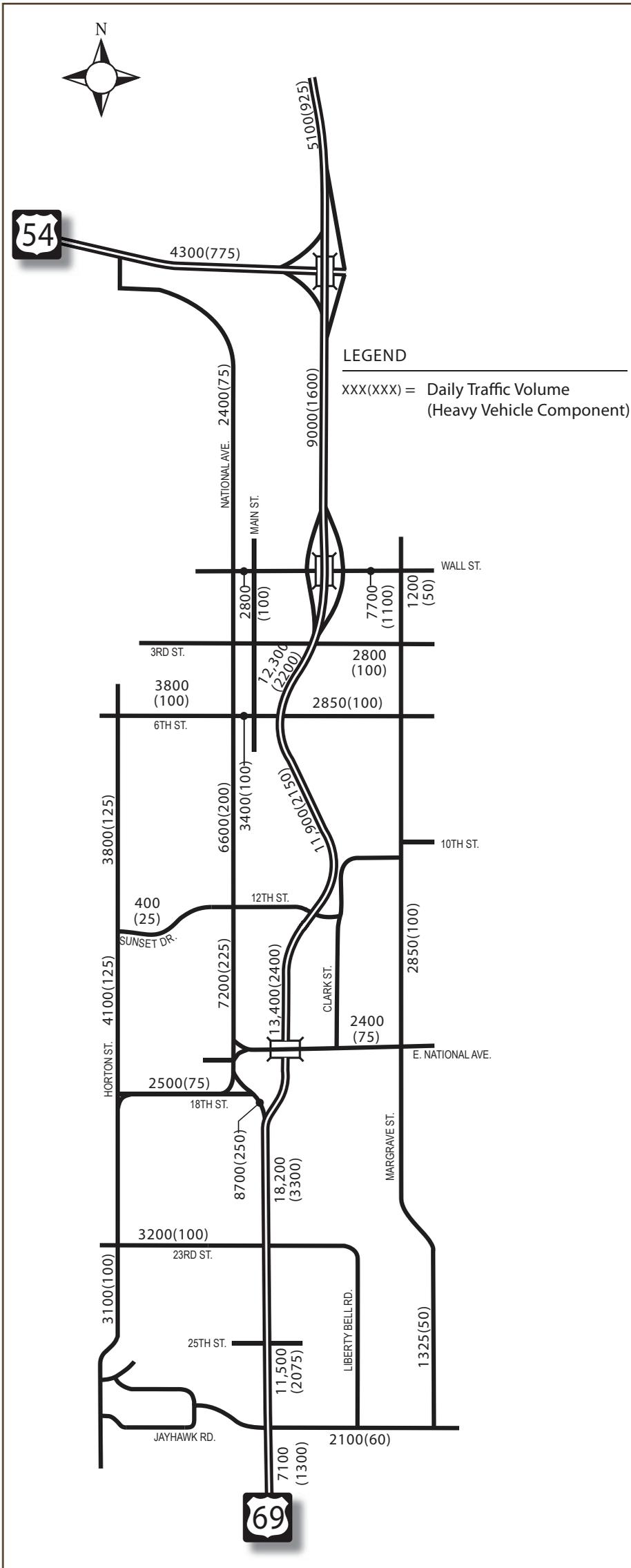


Figure 4.2 2006 Average Daily Traffic Volumes (most recent count)

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.

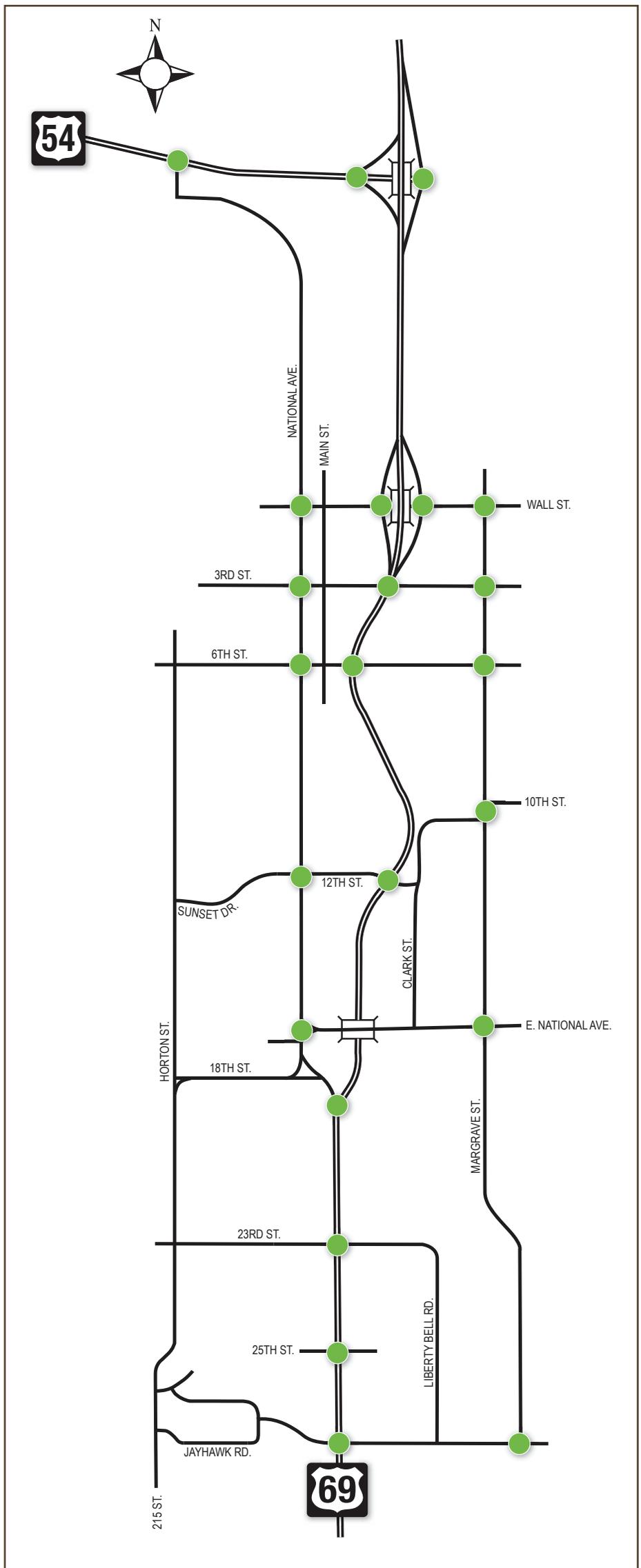


Figure 4.3 Turning Movement Count Locations

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**.

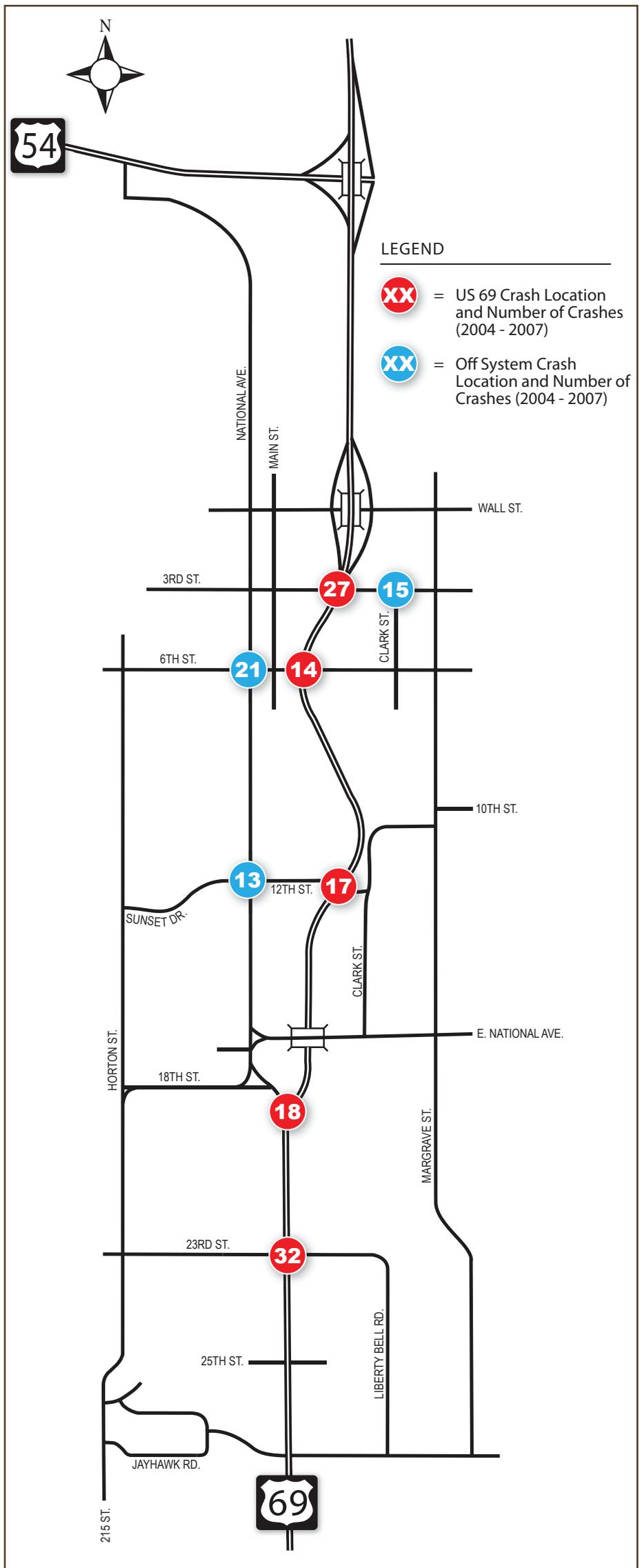


Figure 4.4 High Crash Locations (2004-2007)

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

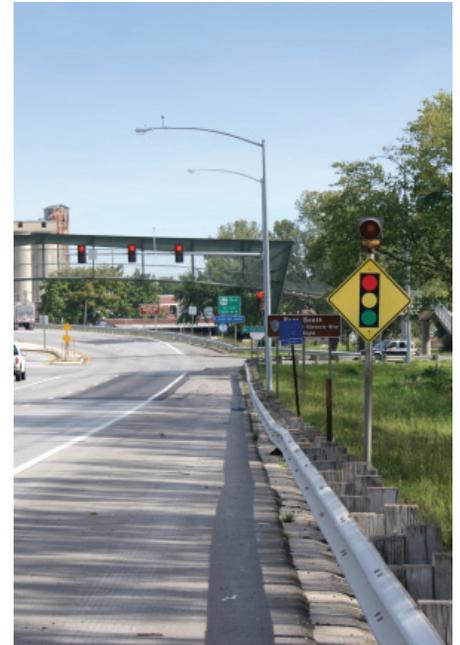
Crash data from 2004 to 2007 for the study intersections along the US 69 corridor are shown in **Table 4.3**. The data was broken out by severity into three categories: property damage only (PDO), injuries, and fatalities. 2009 ADT information was utilized to determine the crash rate per million entering

vehicles (MEV) at each study intersection.

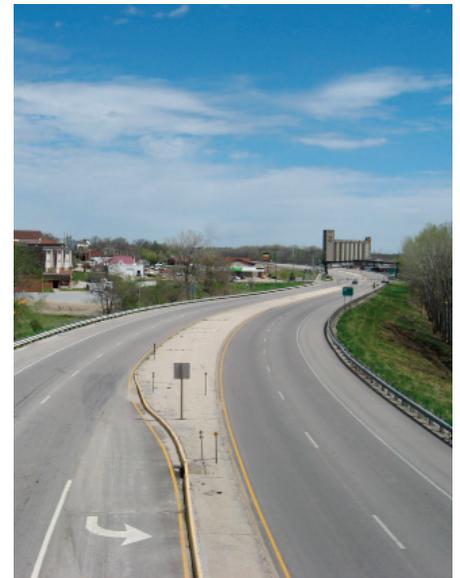
The values shown in **Table 4.3** were compared to the Kansas statewide average crash rates. KDOT has identified the statewide average crash rate as 5.00 crashes per Ten Million Entering Vehicles (TMEV) for rural intersections and 10.00 crashes per TMEV for urban intersections. All of the intersections 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 ur-

ban 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 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 drainage-way 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.

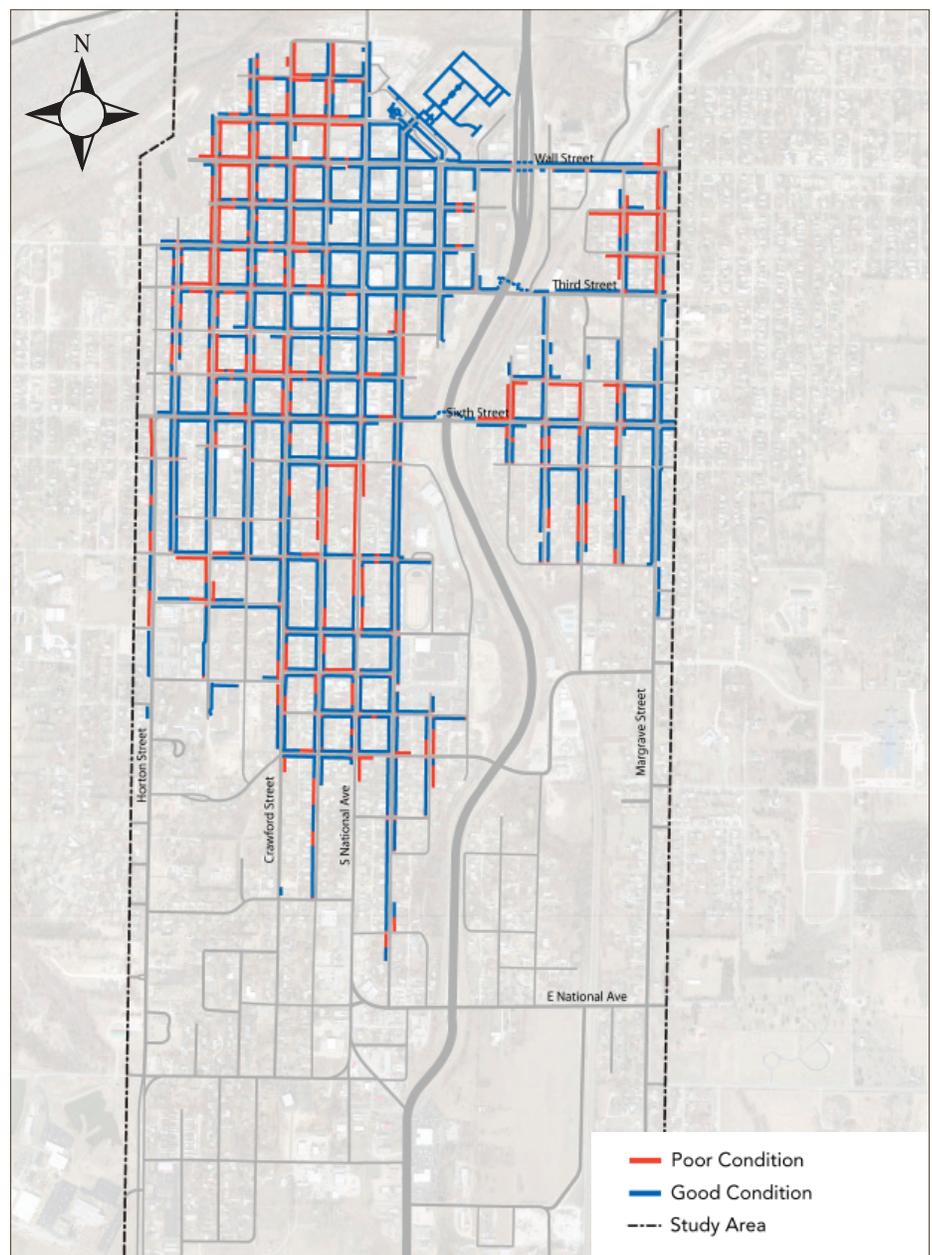


Figure 4.5 Condition of Sidewalks

- 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 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.



Pedestrian Overpass at 3rd Street

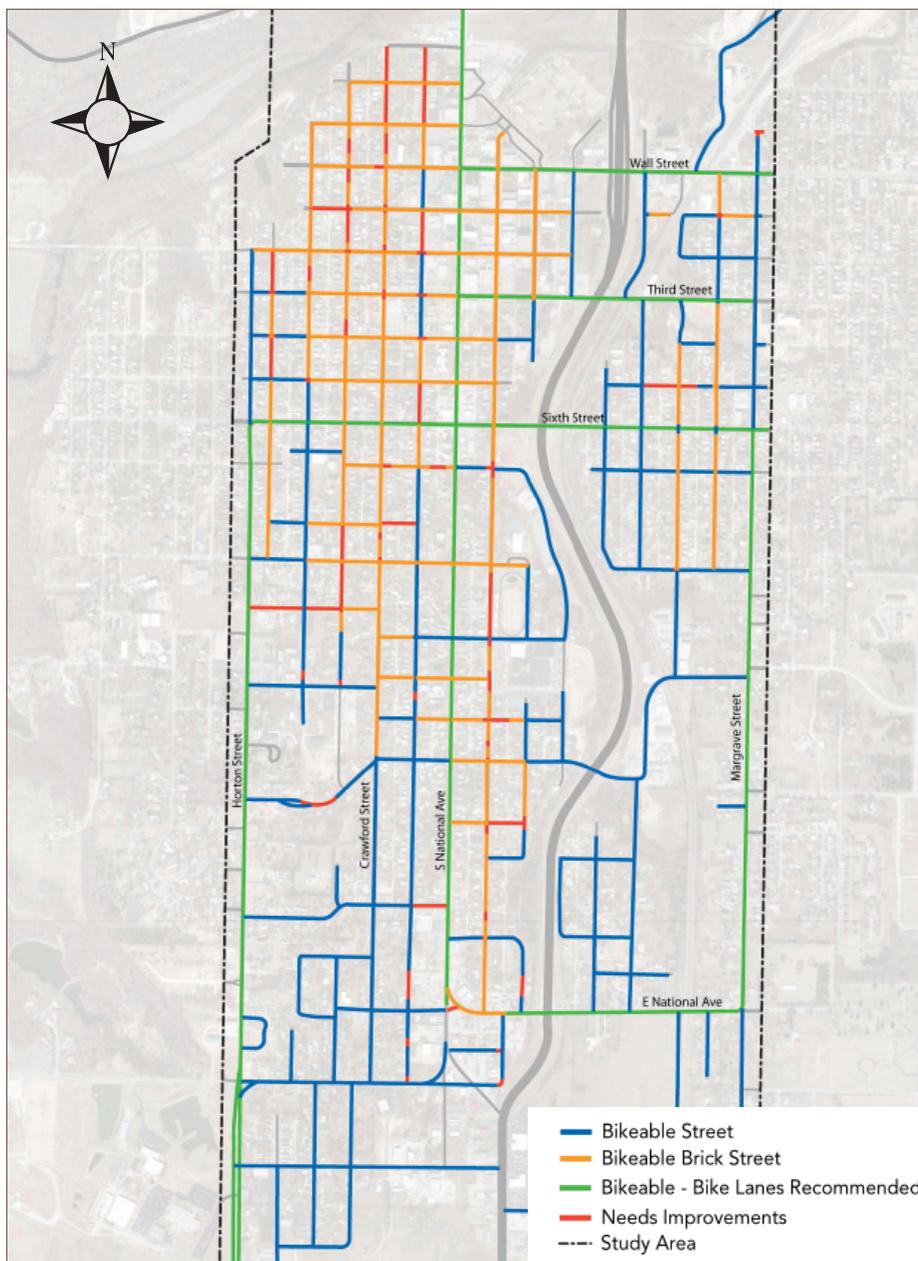


Figure 4.6 Bicycle Suitability

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 spe-

cies. 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

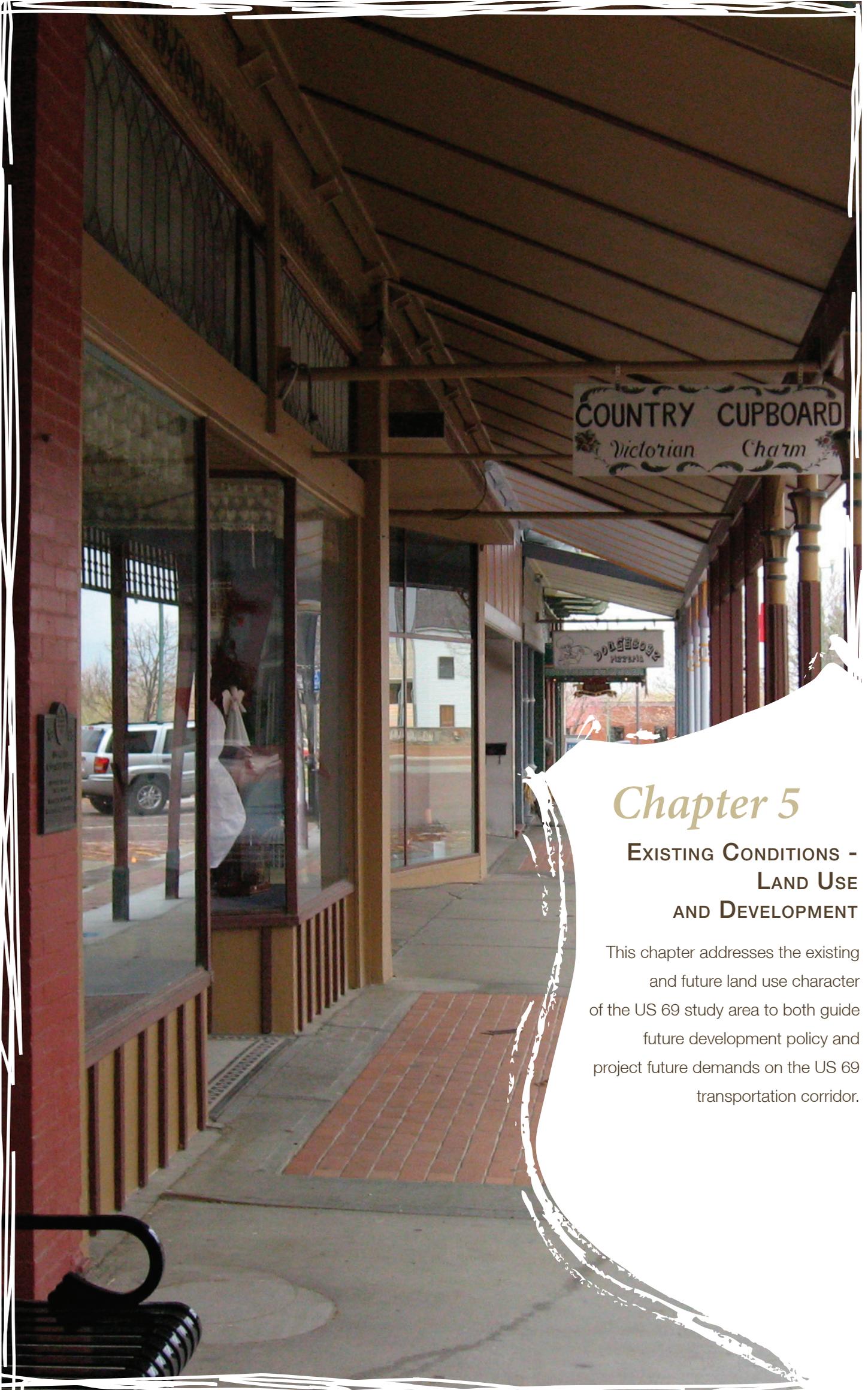


Stormwater drainage through Fisher Park



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.

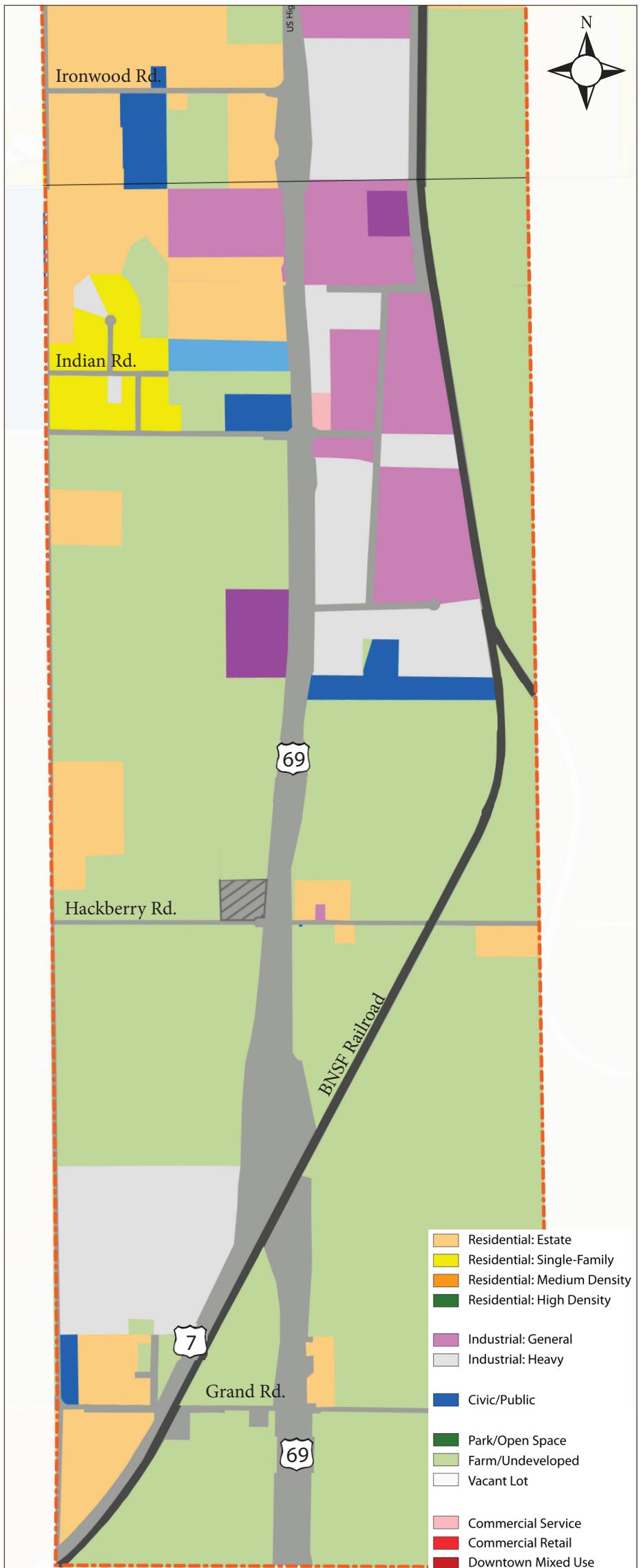


Figure 5.1 Existing Land Use within the Study Area (south)

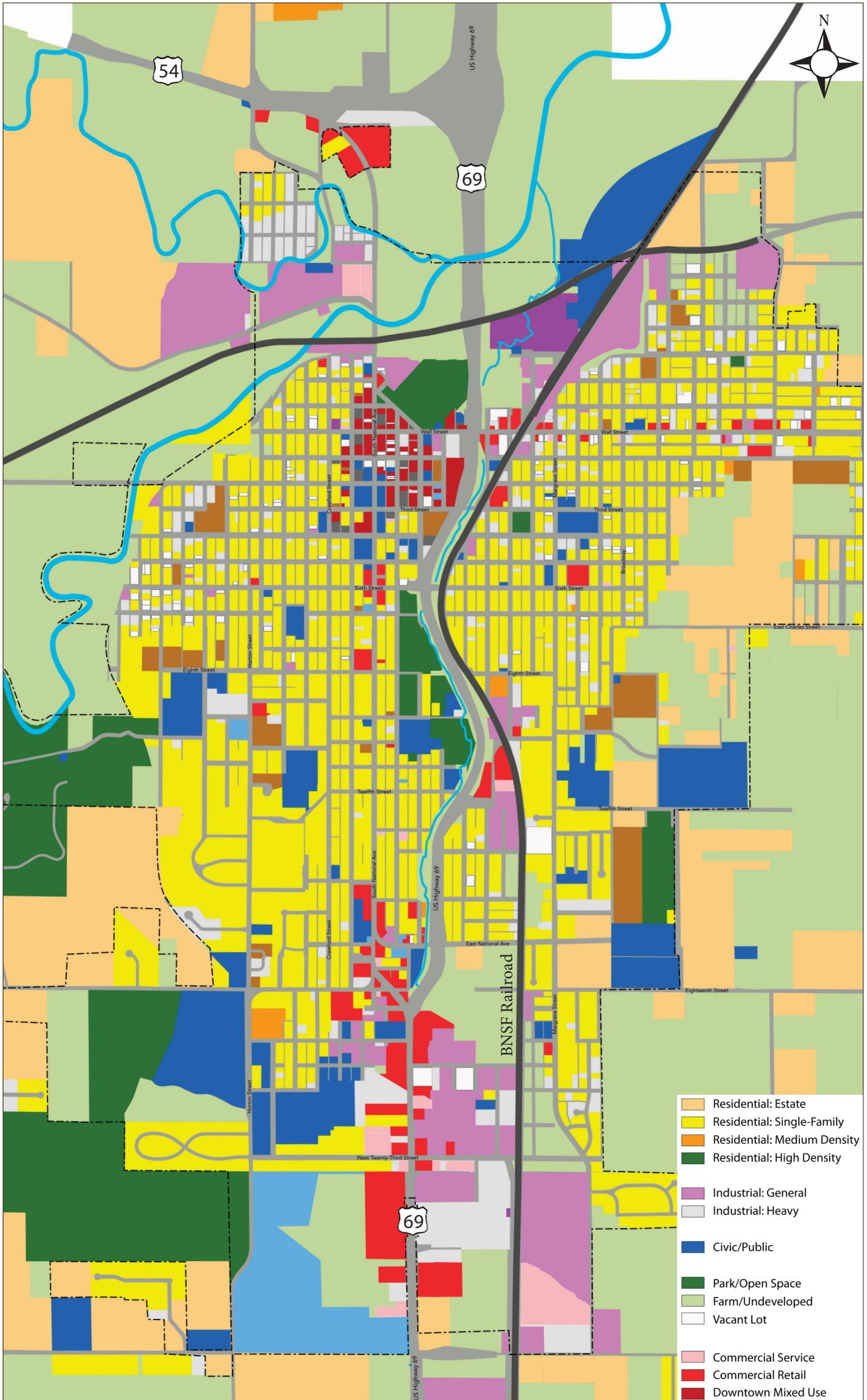


Figure 5.2 Existing Land Use with City of Fort Scott

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 TRANSPORTATION 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 west-bound 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.

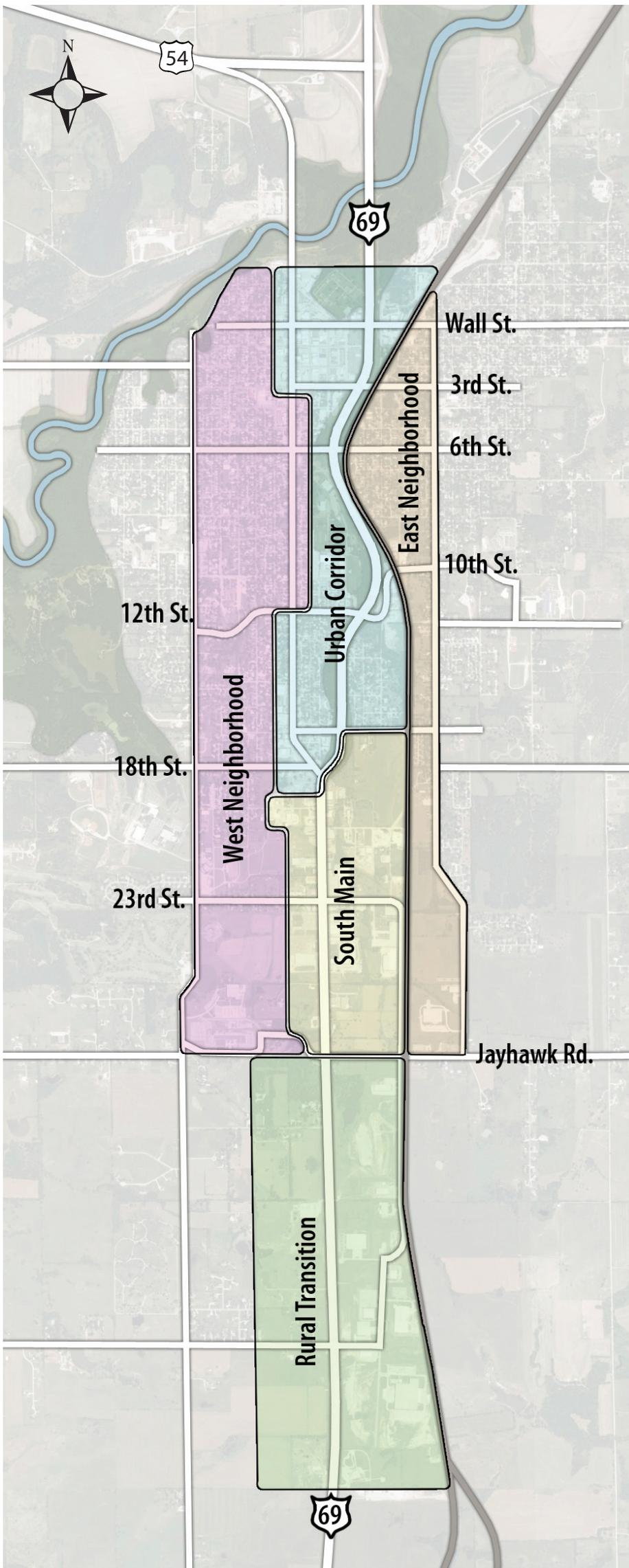


Figure 5.3 Development Contexts within Fort Scott

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.

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



Neighborhood west of US 69 Alignment

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

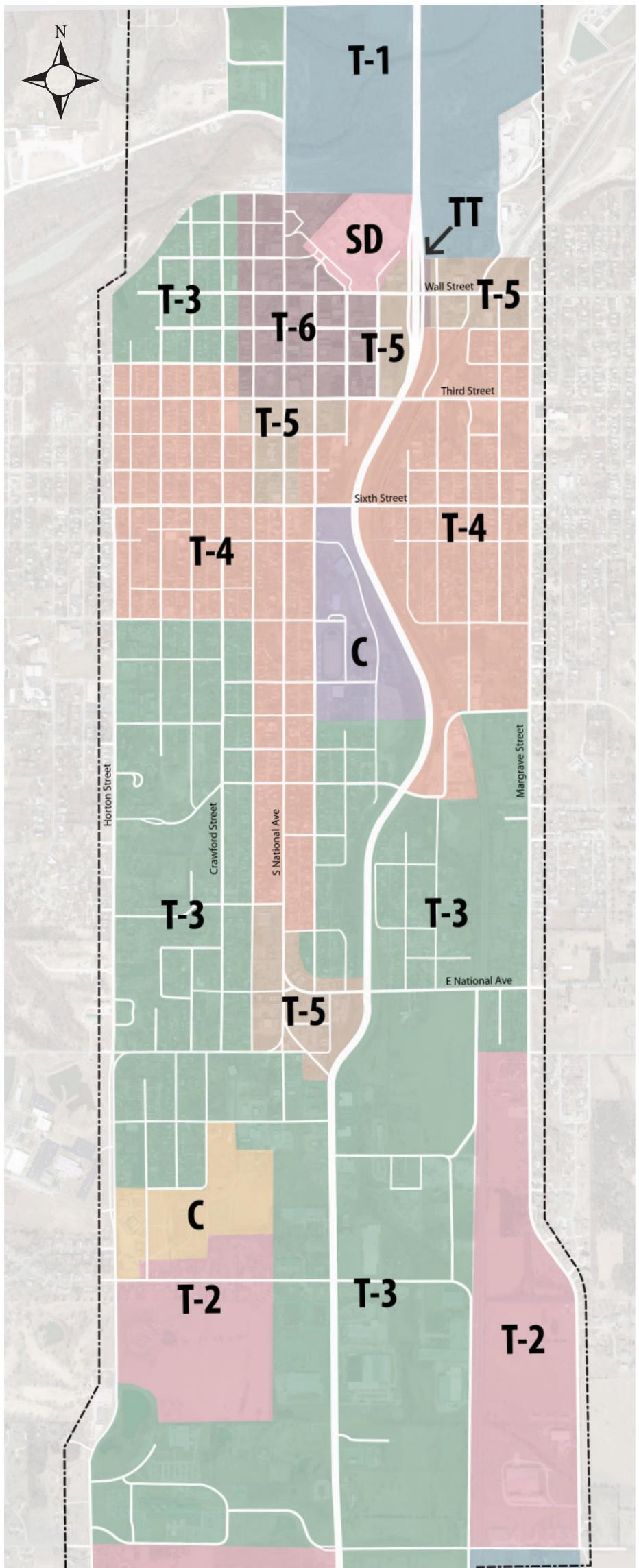


Figure 5.4 Transect Analysis Map

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	<ul style="list-style-type: none"> - Open or agricultural land. - Land unsuited for development because of natural resources or constraints. 	<ul style="list-style-type: none"> - Marmaton River floodplain - Agricultural areas south of the Highway 7 interchange 	<ul style="list-style-type: none"> - Preservation of agricultural uses - Investment in trails and passive recreation - Woodlands and natural resources preservation - Stormwater management and regional retention
T-2	Rural	<ul style="list-style-type: none"> - Very low-density development. - Large-lot residential, farmsteads. - Deep setbacks from roads. - Topographical and infrastructure limitations on development. 	<ul style="list-style-type: none"> - West side of US 69 south of Jayhawk Road 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - South Main corridor - Fort Scott Industrial Park - Residential areas east of Horton and south of 9th Street. 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - National Avenue from 6th to 14th Street. - Eastside residential west of Margrave from 1st to 7th. - Westside residential neighborhoods north of 9th. 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - South National business district. - National south of Downtown core - Wall Street between Downtown and tracks 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Civic buildings and spaces appropriate to their setting 	<ul style="list-style-type: none"> - Fisher Park - Fort Scott High School 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Fort Scott National Historic Site 	<ul style="list-style-type: none"> - 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

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



Parks and Recreation

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

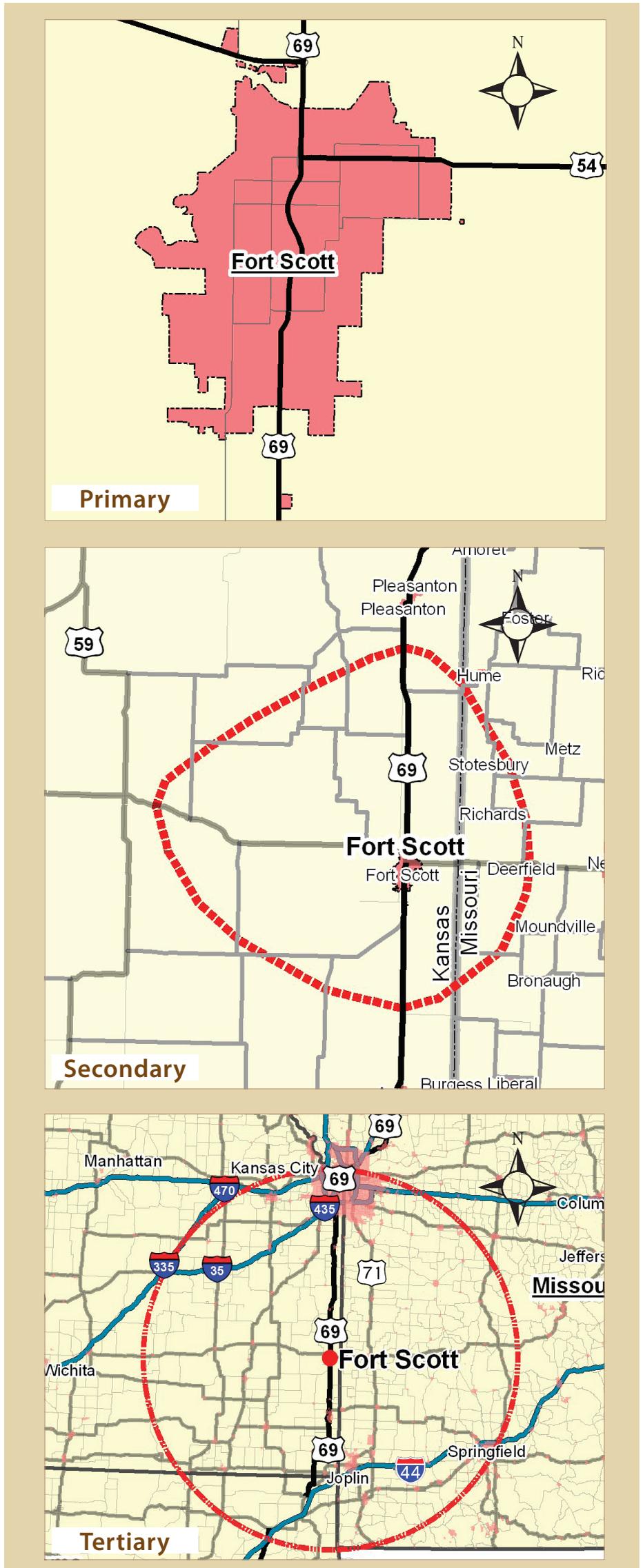


Figure 5.5 Primary, Secondary, Tertiary Trade Area Maps

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
0% 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 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 dol-

lars 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. Virtu-

ally 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

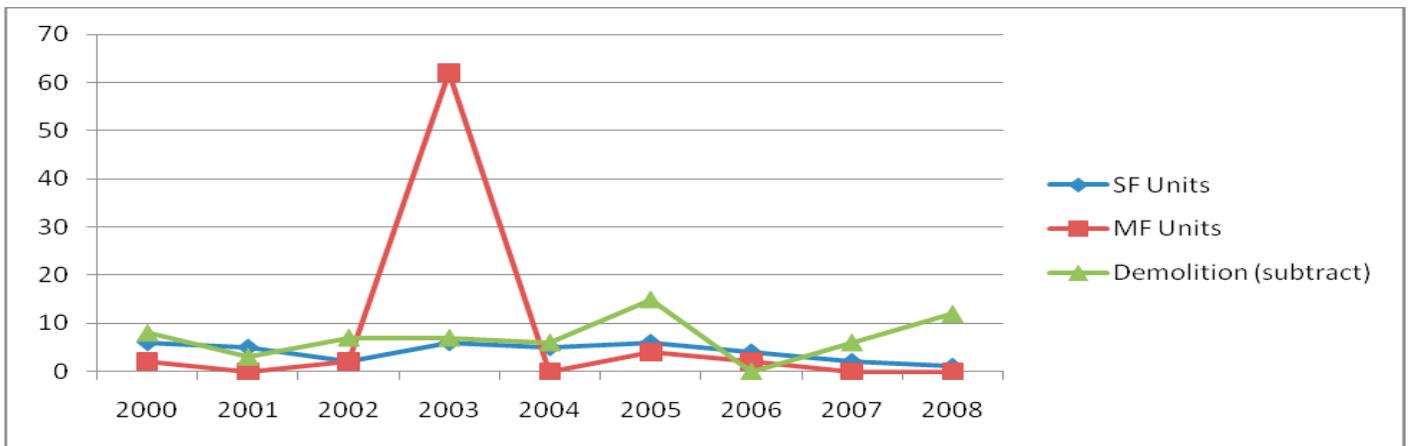


Figure 5.6 Building Permits between 2000 and 2008 in Fort Scott, KS.

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 $\frac{3}{4}$ (or 45% of total unit demand) will be in conventional large to medium lot size single-family detached homes; and $\frac{1}{4}$ (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 $\frac{3}{8}$ (or 15% of total unit demand) will be in attached units such as townhomes and $\frac{5}{8}$ (or about 25% of total demand) will be in multi-family 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.

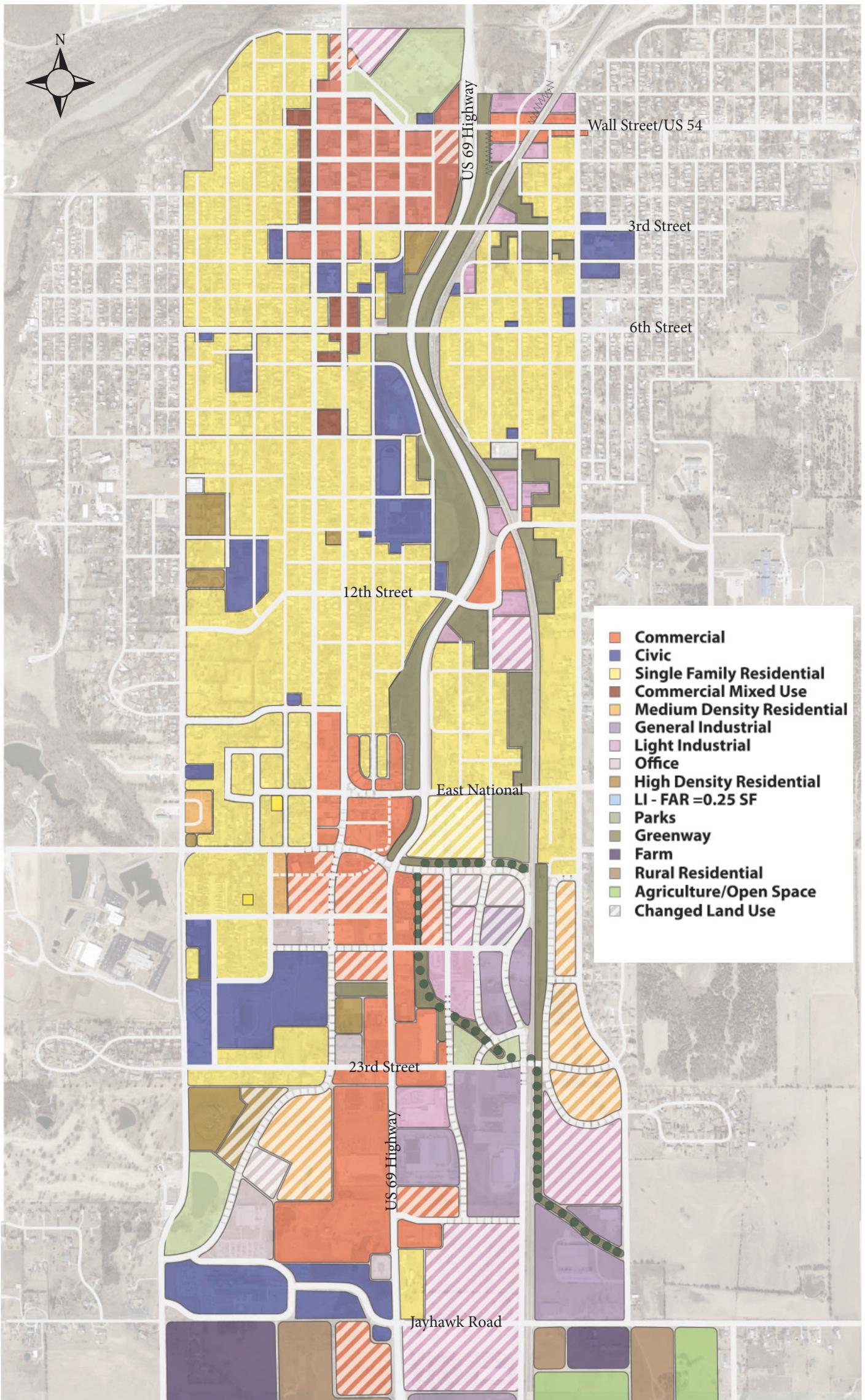


Figure 5.7 2040 Future Land Use Plan within Study Area

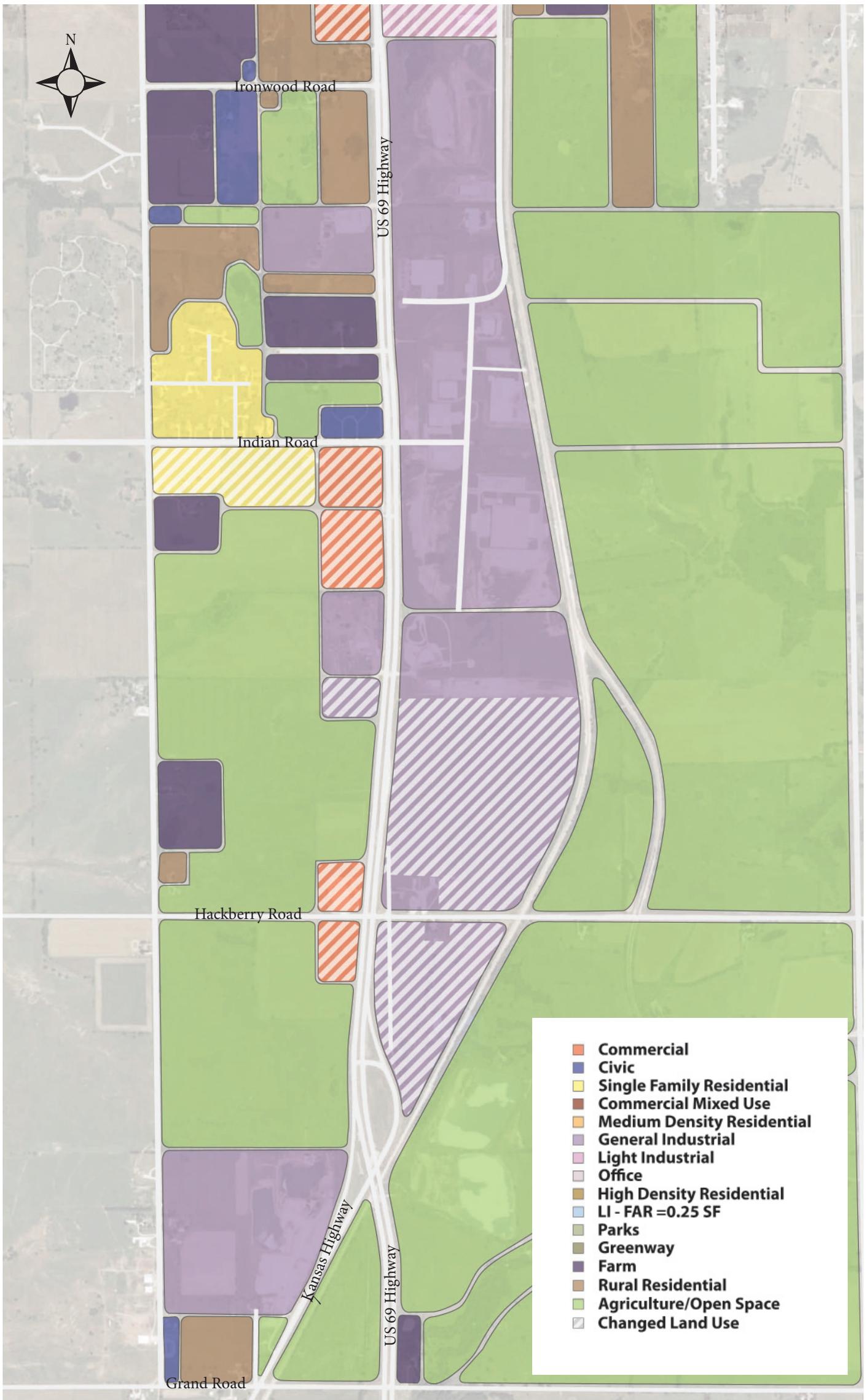
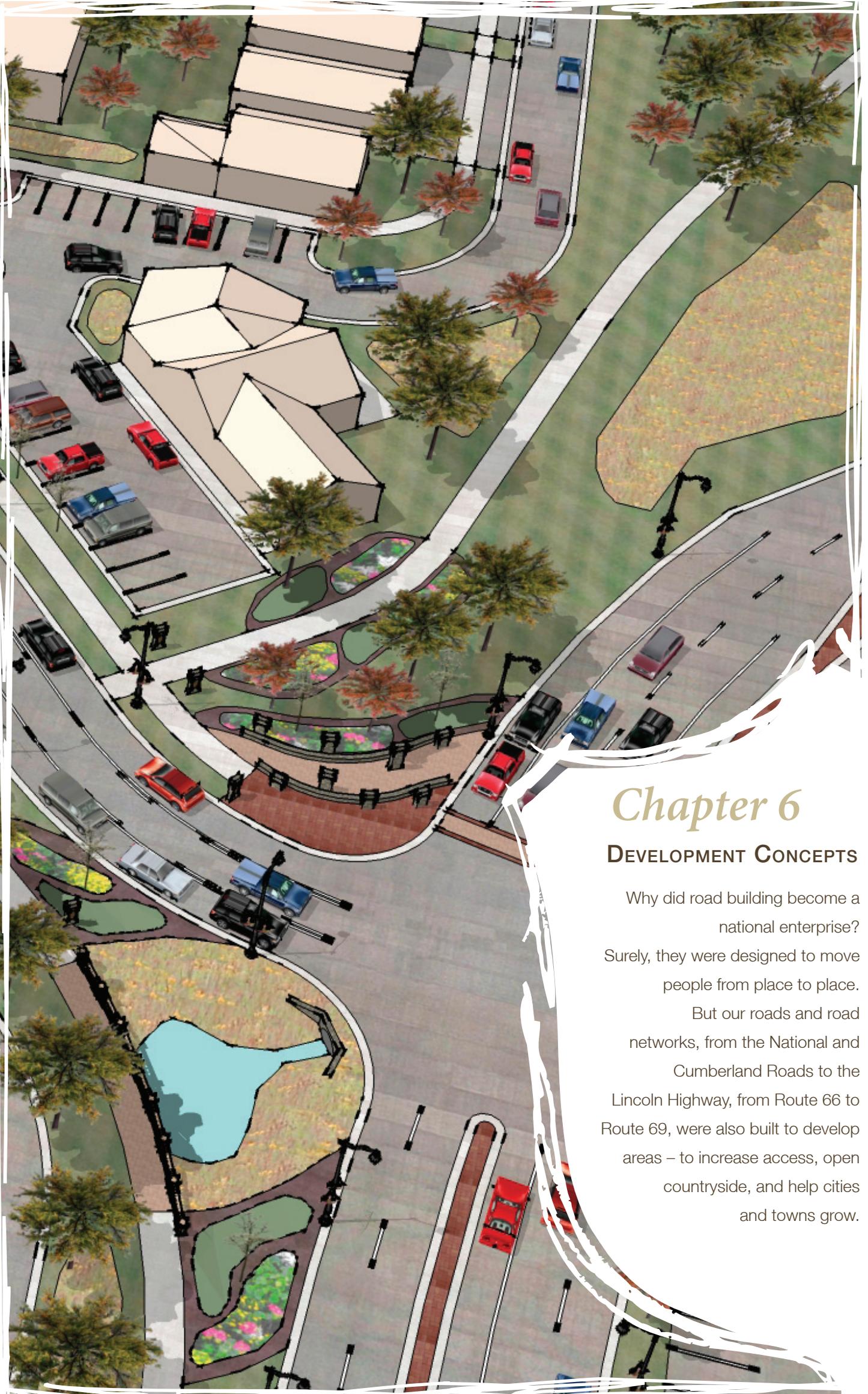


Figure 5.8 Future Land Use Plan (south)





Chapter 6

DEVELOPMENT CONCEPTS

Why did road building become a national enterprise? Surely, they were designed to move people from place to place.

But our roads and road networks, from the National and Cumberland Roads to the Lincoln Highway, from Route 66 to Route 69, were also built to develop areas – to increase access, open countryside, and help cities and towns grow.

A CORRIDOR FOR COMMUNITY DEVELOPMENT

Why did road building become a national enterprise? Surely, roads were designed to move people from place to place. But our roads and road networks, from the National and Cumberland Roads to the Lincoln Highway, from Route 66 to Route 69, were also built to develop areas – to increase access, open countryside, and help cities and towns grow.

Promoters of roads and the communities and regions that they serve have understood the relationship between transportation and economic growth. The famous Lincoln Highway of the 1920s grew out of an effort to knit existing and planned segments of road through the middle of the country into a cohesive route, moving people to and through communities along the way to help them grow. The present-day US Highway 69 promotes improvement of the road that is the subject of this plan for exactly the same reason.

This document and the planning process that produced it 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. When the US Highway 69 corridor interacts with the rich fabric of Fort Scott, we find the potential to create a unity that is exciting in its scope, yet within the means of the city to accomplish.

PROGRAM FOR DEVELOPMENT

The vision begins by establishing a development program, much like the architectural program for a building project. This program, developed with the input and insight of Fort Scott citizens who participated in the planning process, identifies the ingredients of development – the amount of space that markets can absorb, present and future community needs, current projects that are pending, and other opportunities. The program includes three separate agendas: development, community, and functional, together expressing the different roles that US 69 has and can have in the community.

THE DEVELOPMENT AGENDA

- **Attracting commercial development to existing commercial areas.** Assuming a return to a normal retail economy, Fort Scott has the potential to absorb 66,000 square feet of new retail space during the next ten years. This development should be one of the three major districts in the US 69 study area: Downtown, the South National Area or the South Main corridor. Assuming a suburban floor area ratio of 0.15, this corresponds to about 10 acres of new commercial land. For planning purposes, land use planning for the study area should designate a minimum of 20 acres of commercial land.
- **Building about 206 new housing units in the next thirty years.** The plan considers a 0.25% Compound Annual Growth Rate resulting in a 2040 population of 8,514, or an increase of about 600 people. About 106 acres should be designated for new housing development.
- **Completing development of the Fort Scott industrial park.** Based on the methodology presented in Chapter 5, the city will generate a demand for acres for industrial land. Existing vacant land in the Fort Scott Industrial Park can accommodate much of this demand. However, population-based methodologies can be unreliable because industrial location decisions are made on the basis of other considerations, such as transportation facilities and available workforce. Completion of US 69 to Kansas City and continued improvement south to I-44 could increase industrial demand in the Fort Scott area.

- **Redeveloping underused property.** While most of the corridor and its business districts are built up, opportunities for redevelopment still exist. These opportunities include vacant or underused sites, obsolete commercial uses, unnecessarily large parking lots, and declining residential structures. A thoughtful development concept can guide the reuse of these sites, and help ensure that reinvestment produces results that are both rewarding and advance the interests of the city.

THE COMMUNITY AGENDA

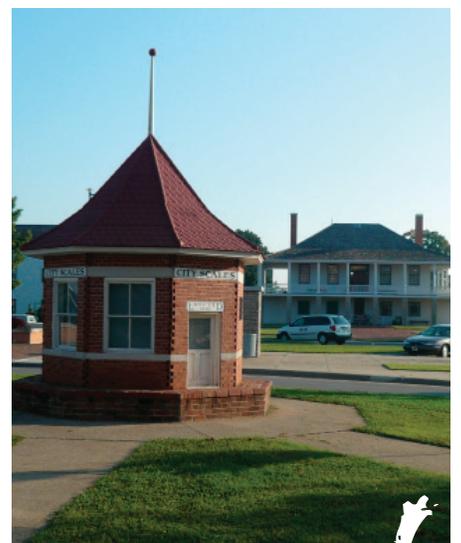
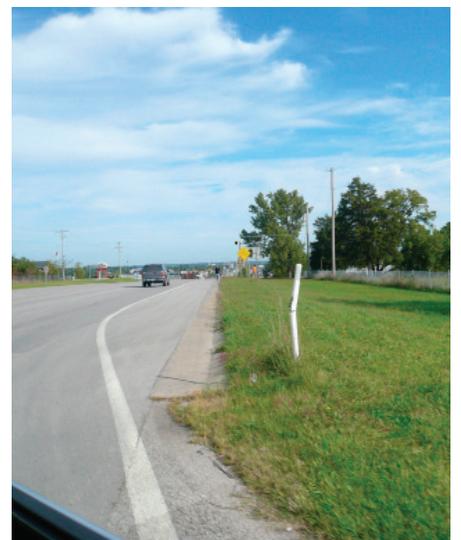
- **Creating a distinctive community image and experience.** As it competes for residents and investment, Fort Scott must become a stronger destination, offering distinctive experiences and an attractive setting to customers. Each context along the US 69 corridor present important opportunities. The traditional downtown and Fort Scott offer enormous architectural and historic treasures, but will remain undiscovered without a strong physical connection to the highway. South National relates to the National Cemetery and has a scale and business variety that appeal to both residents and travelers, but is not yet a coherent business district that customers find easy and attractive to use. Finally, the South Main corridor provides large-scale retailing and services, but should be more than a generic “strip” as alternative business areas grow. The highway corridor should provide both a positive sense of this historic city and should showcase these important districts along the way.
- **Connecting the business districts to neighborhoods.** While the highway is a linear connection among Fort Scott’s commercial and industrial districts, the road/railroad corridor also divides the eastern and western parts of the city. Many of the city’s major destinations, including businesses, services, the high school, and the community college are west of US 69, and good physical and circulation linkages from the east improves access and unifies the city.
- **Expanding business and private investment.** Development concepts should lead to actions that significantly improve the district’s business and investment climate. The

program should stabilize existing businesses, and reward desirable new investments that strengthen the district. Public realm investments can create conditions for desirable private responses that will preserve and increase property values, increase sales tax revenues, and attract new businesses.

- **Increasing visitor activity, especially at the Fort Scott National Historic Site.** From a downtown business and visitor perspective, the historic fort is a great attraction, with both great historic value and economic potential. As more people travel along an improved US 69, the number of potential visitors and customers increases. By presenting a stronger presence from the highway and offering a more pleasant relationship to the historic downtown, the fort can attract more people and generate more economic activity in the community.
- **The Fort Scott National Historic Site is not the city’s only important historical and cultural attraction.** The city itself is a museum of superb commercial and residential architecture. The Gordon Parks Center for Culture and Diversity and the Gordon Parks photography gallery at the community college, along with the National Cemetery are important assets. US 69 should be a conduit to these and other features, and greater awareness of them generates more visitors and more demand for local goods and services.
- **Developing a community greenway that integrates the Marmaton Riverfront with other community resources.** Fort Scott’s public and private sector have joined forces in an ambitious effort to increase public access and use of the riverfront from Gunn Park to US 69. The highway corridor itself is a green corridor, including a significant drainageway, tree cover, and major features as City Park, Frary Field, and Fort Scott High School. A coordinated effort can extend the benefits of the riverfront project to all parts of the city.

FUNCTIONAL AGENDA

- **Improving traffic circulation and safety.** US 69 should present a safer transportation environment for all users. Current problems include friction between local and through traffic, frequent and conflicting driveway cuts, conflicting left turn movements, abrupt changes in the character of the roadway, excessive speeds, poor pedestrian access, and, in some places, a substandard street section. An important outcome of the transportation system in the overall US 69 study area should be safe and smooth operations for a variety of users.
- **Increasing access for all users.** The study area’s transportation system should move motor vehicles smoothly and comfortably, and encourage active transportation modes. Pedestrian and bicycle transportation is sustainable, healthy and pleasant, and ideally suited to many trips within Fort Scott. “Complete corridors” safely and efficiently accommodate all transportation modes, including motor vehicles, transit, and pedestrian and bicycle transportation.
- **Better local traffic circulation and alternative routes.** Relatively poor street connectivity south of 18th Street directs most Fort Scott residents to US 69 for access to businesses, industries, and employers along the South Main corridor. Better local access, including an improved circulator street network, can decrease dependence on a single roadway, contribute to safer traffic operations, and encourage new development.
- **Environmental sustainability.** The high percentage of impervious coverage in road and commercial corridors such as US 69 complicates stormwater management, creates heat islands, and has other negative environmental impacts. This corridor can become “green” in many ways by effectively managing stormwater, preserving vegetation and local habitat, encouraging alternative transportation, and improving community wellness.



THE US HIGHWAY 69 STUDY AREA: A UNIFYING VISION

The development, community, and functional agendas presented above address the contributing roles that US 69 can have in fulfilling an overall vision: to create an effective and safe transportation corridor that is also an engine for economic development and a delight for Fort Scott's citizens and visitors. The specific development objectives that will move toward completing this vision are to:

- Build a strong community brand for Fort Scott by making US 69 through the city a memorable travel corridor.
- Knit separate parts of the city into a unified, mutually reinforcing whole through improved transportation and pedestrian networks.
- Add new energy to Fort Scott's established business districts as neighborhoods and as renewed retail, service, and civic centers.
- Expand markets by investing in features and amenities that make Fort Scott's commercial districts both convenient and delightful.
- Increase activity and investment in tourism, housing, retail, and office development.
- Create interconnected centers of activity that add value to the experience of living in Fort Scott.
- Assure that development in new redevelopment areas reinforces the business and investment climate of Downtown and South National.
- Improve safety, comfort, and access for all user groups along the US Highway 69 corridor.

This section includes recommendations and concepts that build on the special features and resources of Fort Scott to meet these objectives, and use the opportunities created by this important regional corridor to full advantage.

THE GREAT CIRCLE: US 69 AS PART OF A COMMUNITY NETWORK

As an overall public space vision that unifies several major community initiatives, the US 69 Corridor Management Plan proposes a Great Circle for Fort Scott, a sequence of three "arcs" that, when complete, connect most of the city's cultural, commercial, and natural environments. The concept of a "circle route" or connected park network has been a tradition in American open space planning and has produced some of the nation's greatest urban environments. Examples are George Kessler's boulevard system for Kansas City and St. Joseph, Horace W.S. Cleveland's Grand Rounds in Minneapolis, and Frederick Law Olmsted's Fenway system in Boston. The Great Circle idea, derived from these urban park systems but adapted to Fort Scott, can also have important economic and quality of life benefits.

The three arcs include:

A **"red" or community arc** that follows the highway and the adjacent creek and public space greenway between the river and Jayhawk Road. The character of this arc and its roadscape are considered in this section.

A **"blue" or river arc** that would implement current plans for the Marmaton River greenway, from east of US 69 past the historic fort and continuing to Gunn Park, the city's great public open space.

A **"green" or cultural arc** that continues south from Gunn Park and through the Fort Scott Community College and Bourbon County Fairgrounds.

The components of the Great Circle would have the common thread of a multi-purpose pathway and a consistent graphic and wayfinding system. Yet, within this overall unity, the arcs could have different areas of concentration, depending on their contexts. The "red arc," links the city's places of commerce – Downtown, South National,

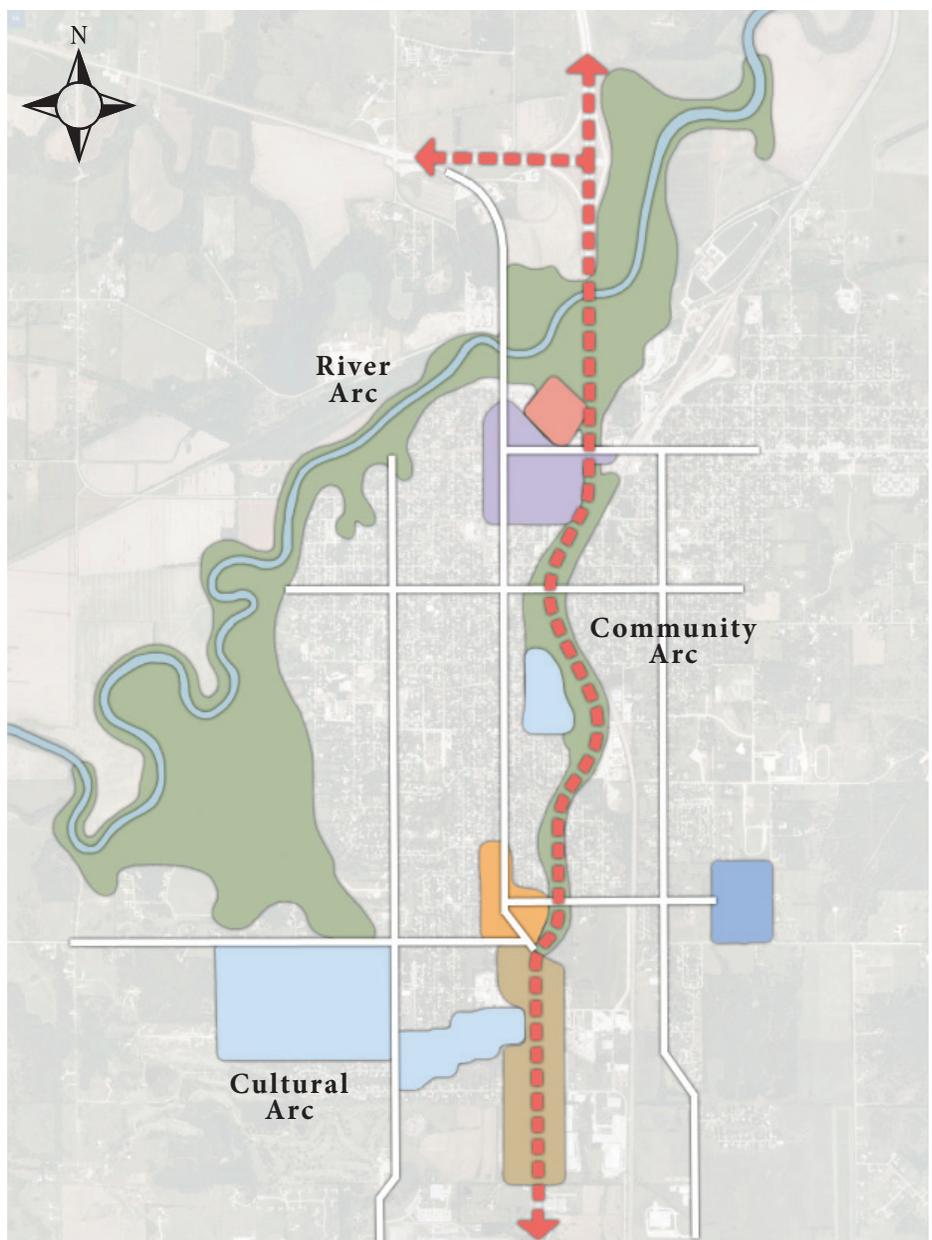


Figure 6.1 The Great Circle

and South Main – along with many of its civic and historical features. The “blue arc,” along the river, celebrates the natural environment and the beauty of Gunn Park. The “green arc” links the community college and the Gordon Parks Center with the fairgrounds and its connection to agricultural life in Bourbon County. Connections off the circle lead to other community features, such as the National Cemetery.

This document, of course, focuses specifically on the highway and its surrounding context between Horton and Margrave. Concepts that implement this community arc include:

- The immediate US 69 corridor itself, visualized as both a roadscape and greenway.
- The business districts served by the highway.
- The supporting systems that enhance mobility for all users throughout the larger planning area.

US HIGHWAY 69: THE HIGHWAY AS ROADSCAPE

The US 69 roadscape concept conceives of the corridor as both an environment in its own right and a feature that markets the entire community. Because the highway provides both a first impression for visitors and a lasting image for residents, it may influence a “brand” for the city. Community branding is sometimes confused with the design of a logo or composition of a slogan; in truth, brands are essentially a set of expectations, and cities, like products, have them for better or worse. In a community setting, community brands actually can guide critical individual decisions – whether to stop at a museum, stay overnight, or invest in a house or business.

Thus, an unattractive or poorly maintained corridor may establish a set of expectations, spread by word of mouth, which may contradict the real quality of a place. For example, New Jersey is a surpassingly beautiful state that richly deserves its slogan as “the garden state.”

However, talk show hosts rarely fail to get a laugh when they deride New Jersey, based largely on chemical plants, salvage yards, and the visual appearance of the Interstate 95 corridor near New York City.

Fort Scott has a few moments to begin to tell its story to travelers along US 69, and the corridor has a critical marketing role to play. Making US 69 a more attractive urban corridor is an intrinsically good thing – citizens want to have pride in their place. Even more importantly, though, it is sound economic strategy, recognizing the importance of product enhancement in a competitive environment. Successful roadscape design and theming approaches emerge from the city’s special characteristics, culture, and history.

This section presents an urban design program designed to 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.

CASE STUDY: Coralville, Iowa



Coralville, IA - Highway 6 before enhancements.



Coralville, IA - Highway 6 after enhancements.

Highway 6 project changed the face of Coralville’s commercial strip, formerly an extremely harsh environment with no pedestrian accommodations, with unattractive signage, and with marginal development. The project, completed as part of a roadway-widening effort, included a streetside trail, landscaping, lighting, and new graphics. The effect has been dramatic, resulting in a substantial upgrading of neighboring development and causing the city to tout this once-disdained commercial corridor as “a classy strip [that’s] worth the trip.”

Guiding Principles

The following overall principles and criteria guide the design of site elements illustrated here.

Theming. Themes and icons express the values and history of a community, and should be expressed clearly but subtly along the corridor. Potential community themes in Fort Scott include:

- Native American culture
- History of the Fort
- Fort Scott National Cemetery and military history
- Natural history of the region
- Railroad
- Gordon Parks and other supremely talented local residents
- Photography and its role in the community

Placement. Careful location of site elements can establish nodes and rhythms along the corridor and can even calm traffic by providing detail and texture. Site elements make the experience of routine travel along a highway more memorable, and further help to establish a community brand.

Materials. Local and regional material choices express the nature and geology of the place, consume less energy to transport to the site, and support the local economy. The use of local limestone and brick reinforces precedents in Fort Scott architecture and public spaces.

Speed and Scale. Site elements should reflect the speed at which people will experience them. Small features with fine details designed for pedestrian scale will be lost in a high speed vehicular environment. On the other hand, pedestrians along a trail have the leisure and desire to enjoy human-scaled features.

Components of the Concept

Architectural Markers & Public Art.

Architectural markers provide visual interest and rhythm in medians and key locations along the greenway. Along with other roadscape elements, the placement of markers help signal to drivers that they are approaching an intersection. The regular placement of features can also establish focuses and pools of light along the way, reflecting the scale and presence of the surround-

ing city. This can be especially useful between 6th and 12th Streets, or north of 3rd Street, where the freeway feel of the road can cause crashes when motorists unexpectedly encounter signalized street intersections.

Public art in the study area creates landmarks and celebrates the corridor's identity. Public art may be integrated with the markers or designed as stand-alone pieces. Its design could be influenced by the fort's stone columns, poetry and quotations, photography, or local vernacular architecture.

Trail Markers. Trail markers announce the location of the greenway where the trail intersects roads or key nodes. Trail markers should be designed to match the style of the architectural markers.

Walls. Limestone retaining walls, planter walls and seating walls can be integrated into the corridor where appropriate. Walls should be terraced at appropriate intervals.

Interpretive and Wayfinding Signage. Interpretive signage, generally scaled to non-motorized pathway users, can celebrate the history, present culture and future possibilities of the city and corridor. The locations of these features may be focused along the greenway, but also may be used throughout the study area and city. The interpretive elements may come in the form of either traditional interpretive panels, but also may incorporate "discovered interpretation." Discovered interpretation pieces are elements that are located just off the beaten path and may come in the form of a poem by a past or current area resident that is located just off the trail or on the side of a pedestrian bridge.

A wayfinding system, also reflecting community themes, should also be designed to lead visitors (primarily motorists) from arrival points to destinations. Wayfinding systems should be attractively designed, but should be clear and understandable to motorists who are making quick decisions. Pedestrian scaled wayfinders may include a higher level of art and detail.

Site Furniture. Other site furniture elements such as benches, lighting and trash receptacles should be selected intentionally for their durability, quality and to coordinate with other site features.



US HIGHWAY 69: THE HIGHWAY AS GREENWAY

US 69 between the river and the South National intersection is a both a greenway and a transportation corridor as it parallels Buck Run. Trees and vegetation mask the surrounding city environment, which includes Downtown, City Park and pool, the high school, community center, stadium, and commercial and residential development. Developing this greenway as a public space can connect Fort Scott's residents to the town's history, culture, and natural environment. The US 69 greenway will encourage users to connect with a restored Buck Run; discover historic features; walk, run, or bike along the greenway; and learn from elements that may interpret the history and ecology of the area through images and words. The greenway concept also has transportation functions by providing safe pedestrian and bicycle access to destinations in the South Main commercial district south of a redesigned 18th Street intersection. Components of the greenway concept include:

The Buck Run Greenway Trail. A multi-use pathway and promenade would run along US 69 and Buck Run, typically using existing level areas to provide a continuous route between the riverfront and South Main, completing the community arc portion of the Great Circle concept. The trail will be both a transportation and recreation facility that connects the downtown district, community center, public parks, residential neighborhoods, schools and the South US 69 commercial district. The trail would connect with the proposed riverfront trail on the east side of the highway, with a connection to Downtown and the historic fort using a largely disused railroad right-of-way that passes under US 69. The main trail

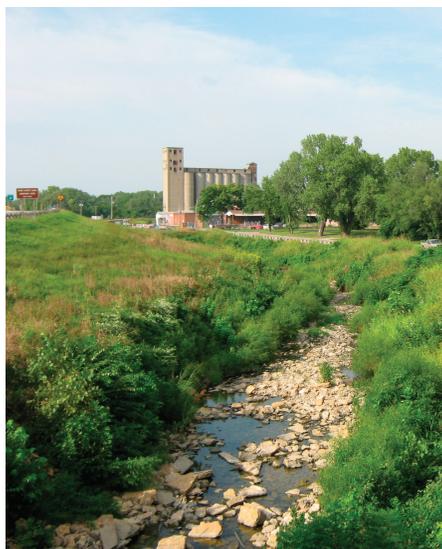


Figure 6.1a Greenway Map - North

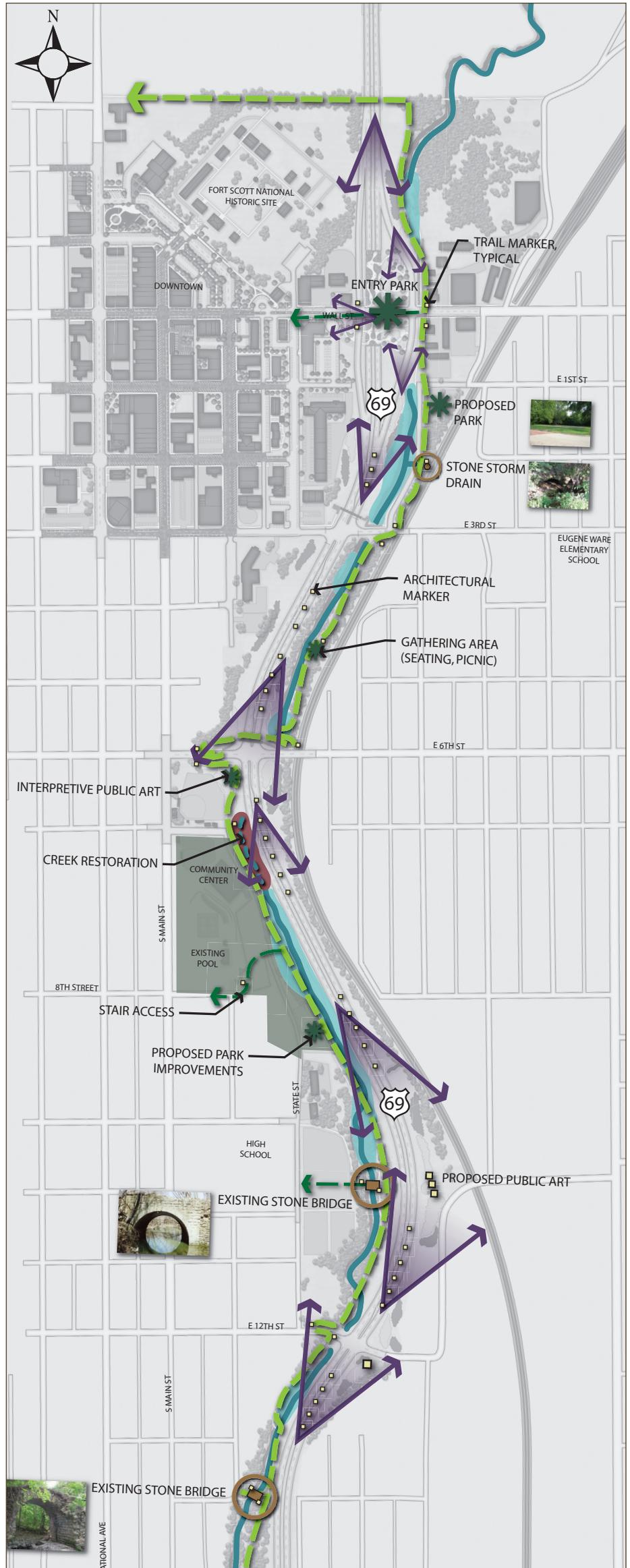
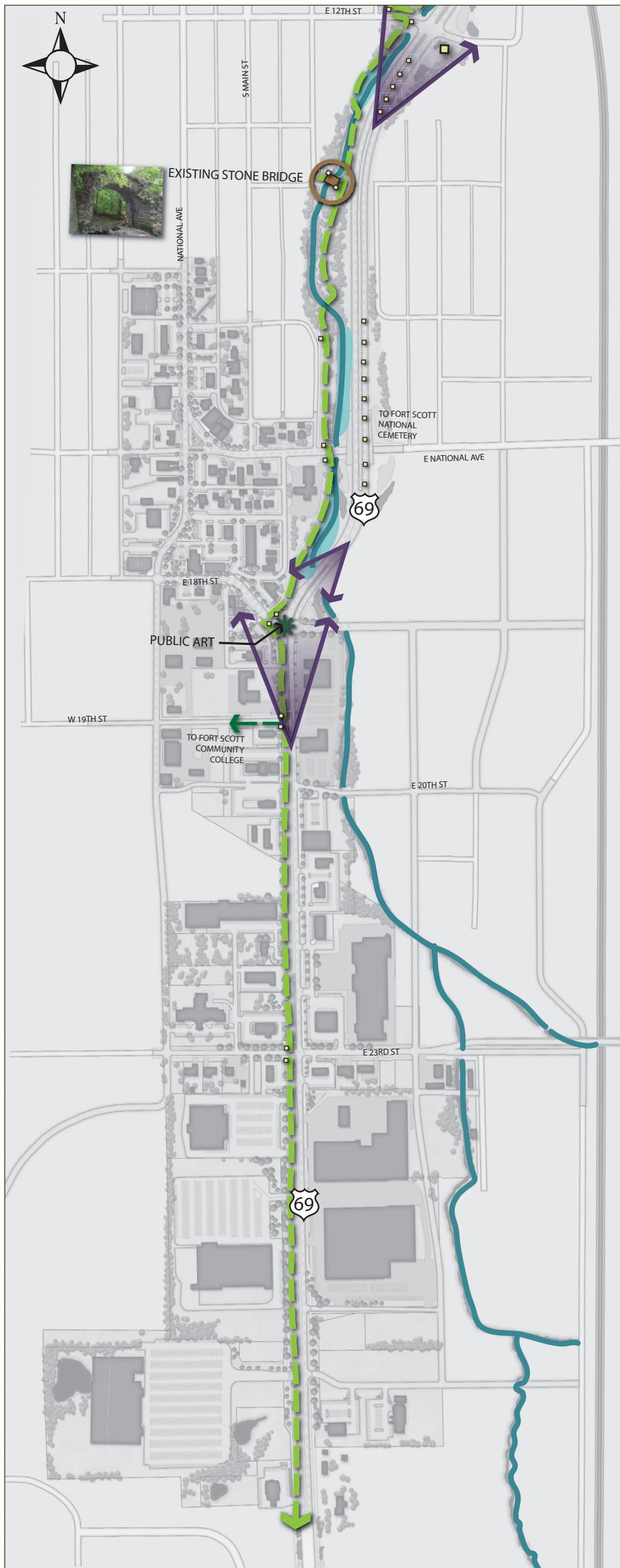


Figure 6.1b Greenway Map - South



continues along Buck Run, crossing to the west side of US 69 at 6th Street, either at-grade or using a reconstructed overpass. The pathway would proceed through City Park and along the edge of the Fort Scott High School campus, and continue along the creek and the west side of the highway to a new 18th Street intersection. From there, the trail becomes a sidepath along US 69 through a landscaped right-of-way that serves adjacent business, connecting with the “cultural arc” of the Great Circle at the Bourbon County Fairgrounds. **Map 6.1 a & b** illustrates a conceptual alignment for the trail. Detailed study is needed to define exact alignment and determine the best locations for crossings over Buck Run. The trail would be built primarily on public land and street rights-of-way; however, land purchases or easements may be necessary in a few locations.

Specific features of the greenway trail include:

- **Markers.** Trail markers may be placed at road crossings and along the corridor. These markers should identify the trail as part of the Great Circle, provide distance information, and direct users to nearby features. In addition, mileage markers are important to help locate people needing assistance in emergency situations.
- **Interpretive graphics** relating to historic and cultural themes in Fort Scott and Southeastern Kansas.
- **Bridges.** Two historic stone bridges along the conceptual trail alignment should be preserved and restored as a part of the greenway.
- **Public Spaces.** Vacant public land at the intersection of the greenway and East 1st Street could be a trail-side park that serves both trail users and northeast Fort Scott neighbor-





Looking north along Buck Run west of US 69.



Trail improvements to Buck Run Greenway.

hoods. Use of existing parkland near the community center and along the proposed trail could be increased with new facilities such as a skate park. Other points along the trail provide nodes for seating and passive use.

Urban Pathway. An urban pathway on the west side of US 69 between Wall Street and 6th Street would connect the Greenway Trail to downtown and its sidewalk system. This pathway would use State Street between Wall and 3rd and either separate right-of-way or Scott Street between 3rd and 6th Streets. South of the proposed 18rd Street intersection, the pathway continues south along the west side of the highway, providing access to businesses along this commercial corridor. The south pathway concept is discussed later in this chapter.

US 69 Crossings. The Bush Run Greenway is designed as a resource

for the entire community and, as such, it should reduce the barrier quality of the US 69/BNSF corridor. New or better crossings of these corridors can help unify the east and west sides of the city. Specific projects include:

- A trail link along disused rail right-of-way on the Elm Street alignment, extending along the north side of the Fort to Elm and National and Maple Ridge Park on the south bank of the river.
- Improvements to Wall Street and the Wall Street/US 69 interchange, including a new boulevard section on Wall Street, redesign of the interchange, a major public art installation at the US 69 overpass and adjacent open space, and new pedestrian pathways and bicycle lanes along Wall Street to Downtown. This concept is discussed below as part of the Downtown development program.

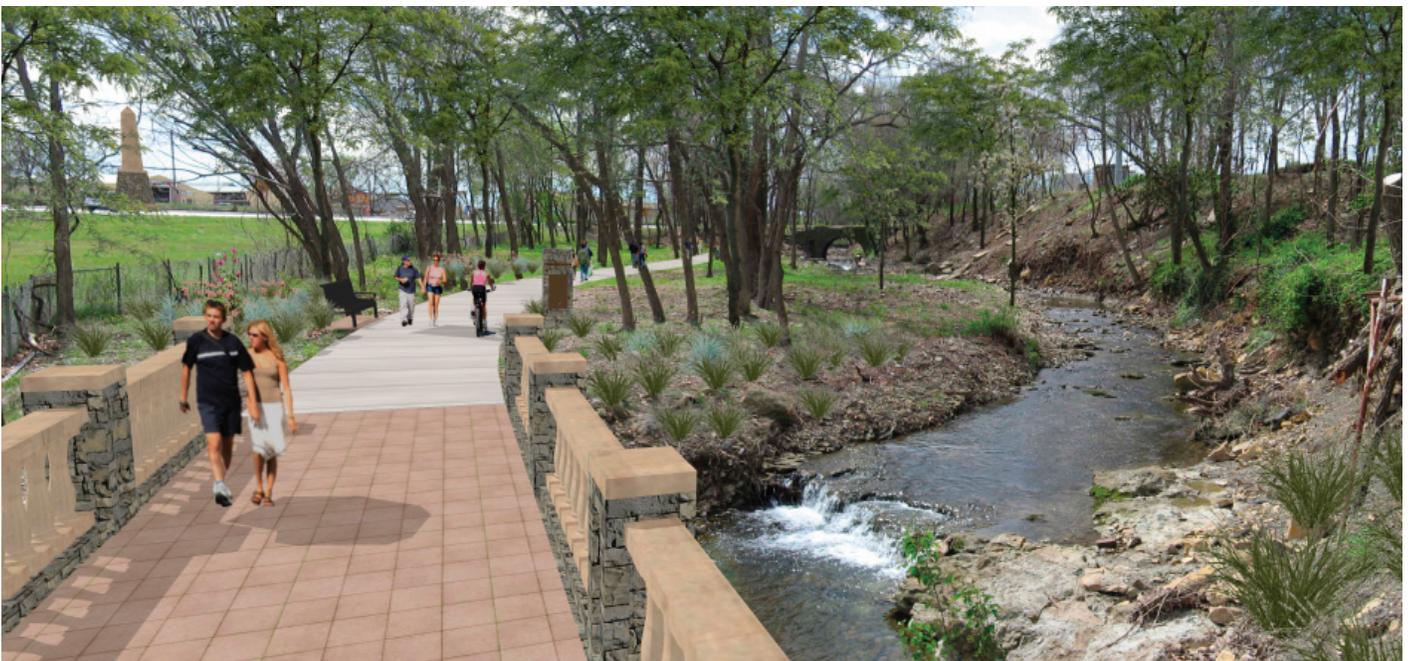
- Reconstruction or replacement of the 3rd and 6th Street pedestrian overpasses to contemporary accessibility standards. These overpasses are basic parts of the Buck Run Greenway.
- Redesign of the South National/18th Street intersection, described elsewhere in this plan.
- Construction of a 23rd Street grade separation over the BNSF tracks.

Buck Run Improvements. The Buck Run drainage corridor can be enhanced to slow, absorb and clean stormwater runoff; improve wildlife habitat; and reduce erosion. To achieve these goals and improve the visual quality of the creek environment, the plan recommends:

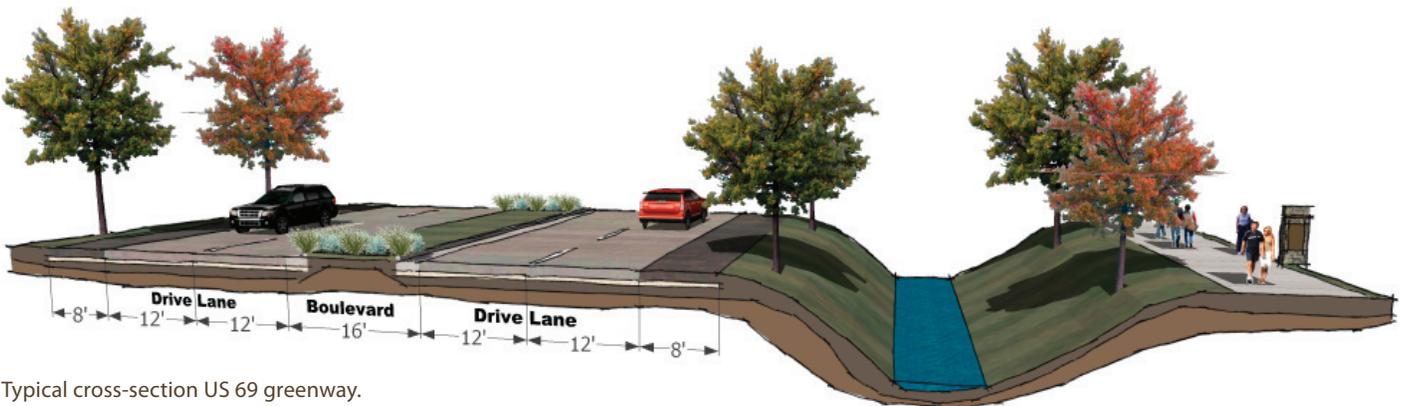
- Naturalizing areas of the creek currently lined with a concrete channel



Looking south along Buck Run west of US 69.



Trail improvement to Buck Run Greenway.



Typical cross-section US 69 greenway.

- Restoring native planting and increase species diversity
- Stabilizing streambank edges
- Utilizing filter strips, bioswales and recreated wetlands as part of a comprehensive system to improve water quality and mitigate storm-water impacts
- Engaging the public in monitoring creek health and completing improvements

These strategies should be employed where applicable throughout the length of Buck Run. **Maps 6.1a & 6.1b** illustrate specific areas in need of significant attention.

Regional Materials. Structures such as bridges, trail heads, and wayfinding should use limestone and brick in their construction. Landscaping in the greenway and along the road should utilize native trees, grasses and forbs. These

materials maintain the lowland prairie environment and manage stormwater effectively. In addition, existing features within the greenway should be part of the design of the trail. For example, the stone bridge east of the high school campus is a little-known link to Fort Scott's heritage. Its reuse connects the trail and the high school, and preserves a small but important part of the city's heritage.





US HIGHWAY 69: THE HIGHWAY AS AN AVENUE OF COMMERCE

US 69 in Fort Scott is both a roadway and greenway, and the community development strategies described above build on these roles. The roadway enhancements are designed around the image and “brand” that Fort Scott presents to travelers along the highway, a first stop in inducing them to stop for an hour, a day, or even a lifetime. The greenway development conceives of the highway as a community environment, designed to increase public use and reimagine the corridor as a bridge rather than a barrier between east and west. But the road is also an avenue of commerce – a conduit that brings people to adjacent business districts to buy, enjoy, consume, or invest. The strategies considered here are designed to strengthen the connection between the highway and the business centers that it serves, and to improve the business and customers’ experience within those areas, shown in **Figure 6.2**, which include:

- Historic Downtown Fort Scott.
- The South National District, along South National Avenue between 15th Street and US 69.
- The South Main District, the US 69 corridor between South National and Jayhawk Road.



Figure 6.2 Fort Scott Business Centers



Typical cross-section Urban Pathway

Downtown Fort Scott



Description

Downtown Fort Scott is the traditional civic, historic, and economic heart of the community, rich in heritage, distinctive business, and architectural significance. The community and National Park Service have made major investments in and around the Fort Scott National Historic Site, restoring the fort and, through urban renewal, developing visitor parking and a boulevard between Downtown and the historic site. More recently, the city completed a street and sidewalk improvement project along Main Street between Market and 3rd Streets in 2008, and is continuing to upgrade the downtown streetscape. Downtown, with the fort, is the city's pre-eminent image center and visitor destination, but, despite its many resources, continues to struggle with building vacancy and business turnover.

With Downtown's visitor-oriented resources, increased regional tourism related to the historic fort is clearly one key to economic revitalization, making the connection to US 69 particularly important. Yet the district presents a poor entrance from the highway, and is not very visible from the road. The Wall Street interchange is unattractive and somewhat uncomfortable in feel, and Wall Street itself is not an inviting street to visitors. Traffic patterns around the historic fort are confusing to visitors, and both pedestrian and vehicular connections between the fort area and

Main Street are unclear, complicated by one-way circulation that prevents visitors to the fort from driving directly into Downtown. Concepts presented here focus on strategic actions that can most effectively build and retain local business, attract more visitors to the district and ensure that they spend time and dollars during their visit, and increase private investment opportunities.

Program

The program for Downtown Fort Scott shown in **Figure 6.3** includes:

- Creating a highly attractive entrance to Downtown from US 69, beginning with the Wall Street interchange and continuing with Wall Street between the highway and Main Street.
- Improving the space between the historic fort and Downtown with better circulation and connections, more attractive and active public spaces, and additional development.
- Reusing the strategic vacant site at Main and Wall Streets as a multi-use community space that supports other downtown development.
- Improving pedestrian and bicycle circulation throughout the district.
- Providing incentives for key new developments, including lodging and housing.

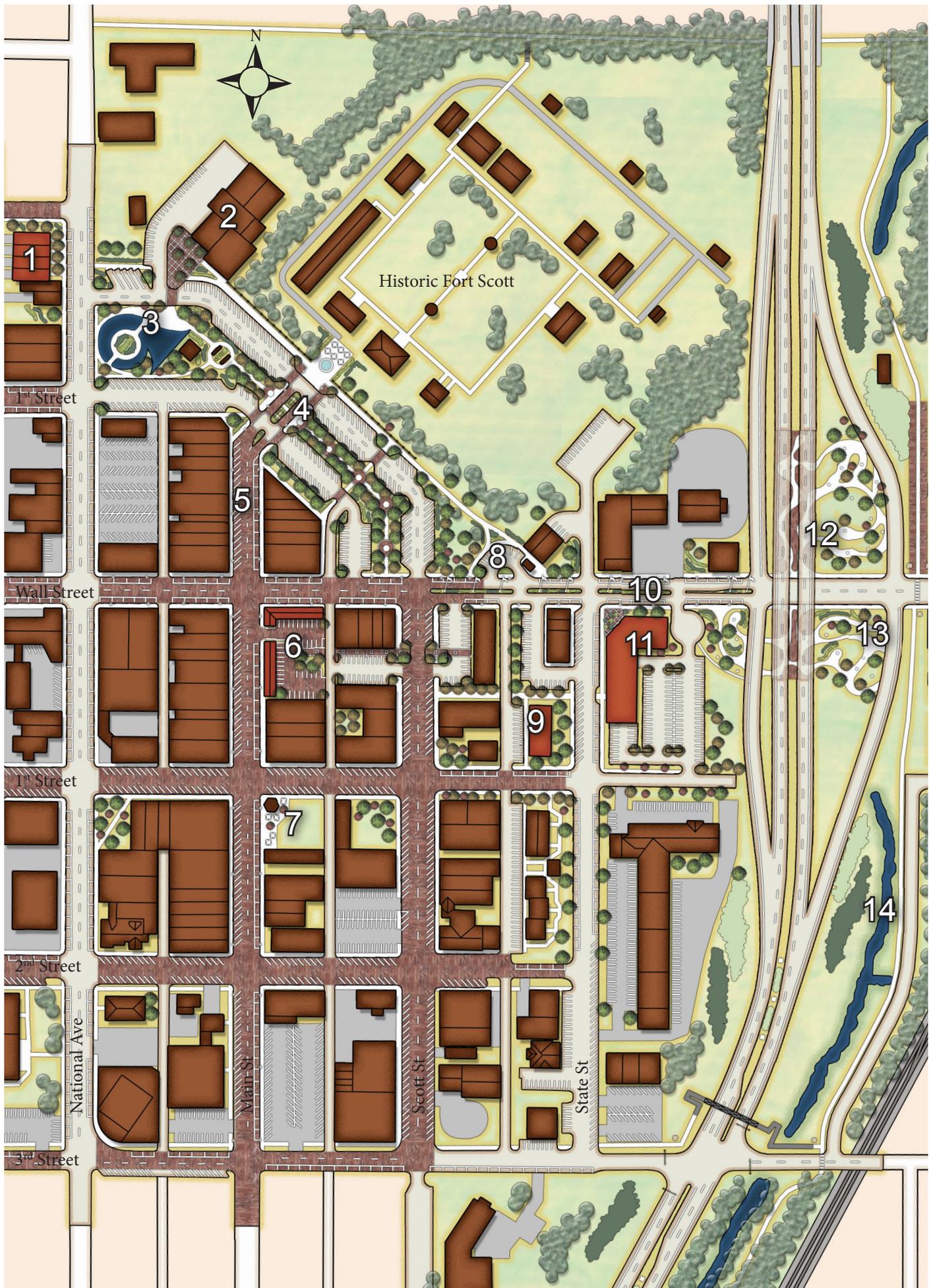


Figure 6.3 Downtown Fort Scott Development Program

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 New Potential Multi-family Development 2 Government Facility Renovation 3 Park Enhancements with water feature & gathering space 4 Old Fort Boulevard Improvements 5 Convert to two-way circulation 6 Multi-use Carscape Plaza (former burn site) 7 Open Space Improvements 8 Parking Circulation and Bus Turnaround | <ul style="list-style-type: none"> 9 Potential Development Site 10 Wall Street Gateway & Streetscape Enhancements 11 Redevelopment Site (potential Hotel site) 12 Public Art Project/ Interpretative Walk 13 Wall Street Interchange Improvements 14 New Greenway Trail |
|---|---|



Present condition, looking south on US 69 on-ramp from Wall Street



Wall Street and US 69 intersection improvement

Components of the Concept

Wall Street Interchange Improvements and Public Art Project. Visitors to Downtown (or travelers on eastbound US Highway 54) typically exit US 69 at the Wall Street interchange, and encounter the low, looming highway overpass supported by rows of concrete columns. The area under the overpass is unattractive and poorly lighted, and the very tight diamond of the ramp creates visibility problems and traffic conflicts with no room for functional or aesthetic improvement. The overall aspect creates a poor transition from highway environment to the historic district, and reinforces the barrier effect of US 69.

The Wall Street Gateway concept will transform this interchange into a gateway that befits Fort Scott and its history and culture, without extensive structural changes to the highway structure. Elements of this transformation include:

- Relocating the northbound access ramps of US 69 farther to the east, intersecting Wall Street at the present Clark Street intersection. Clark

Street south of Wall Street would be realigned to intersect Wall Street at Wilson Street. This creates a safer separation between ramps on either side of the highway, improves visibility, and provides landscaped area used for a park and gateway feature to historic Fort Scott. The major drainageway located adjacent to the northbound on-ramp to US 69 will need to be relocated or enclosed to accommodate this concept.

- A major park and public art installation using the area under the overpass and the neighboring open space created by relocating the ramps. In the concept proposed here, the ground under the overpass would be hard-surfaced, accented by pavers or color-conditioned concrete to define paths that wind around the columns. These paths would continue into the new open space, set off by planted areas of ornamental or native grasses. Free-standing columns of the same scale as the overpass supports would be

located throughout this area. Both the support and free-standing columns would be wrapped with art that reflects the community's heritage, culture, or environment. One concept for this art would apply the theme of photography, including images from the work of the great American photographer and Fort Scott native Gordon Parks and the cluster of fine photographers who continue to work in the city. These images would be set on a base of indigenous brick or limestone to reinforce the themes of local materials and to protect the installation from occasional flooding in this low-lying area. Night-lighting of the columns would de-emphasize the overpass ceiling and add to the dramatic nature of the installation.

- Continuation of the Buck Run Trail through the interchange. The proposed trail would cross Wall Street on the east side of the relocated ramps. Crosswalks using the materials of the paths through the art installation would connect the



April 2009 - west side of U.S. 69 looking down Wall Street



November 2009 - west-side of US 69 looking down Wall Street



Wall Street Boulevard Improvement west of US 69

main trail to the gateway paths, and continue west along the redesigned Wall Street into the fort area.

- *Convenient parking.* The Wall Street boulevard described below and overall interchange design should provide some public parking for travelers wanting to explore the art installation.

The Wall Street Gateway will serve the goals of the overall plan by:

- Improving vehicular and pedestrian safety at the interchange and along Wall Street.
- Creating a unique public space that will encourage exploration of both the art installation and the historic fort and Downtown district.
- Helping to unify the east and west parts of town along the critical Wall Street corridor.

Wall Street Boulevard Improvement. Wall Street is the critical connection between US 69 and downtown and

is especially important because of its visibility to regional travelers, but is a rather weak link in its current condition. This undistinguished street does not successfully bridge the short but important gap between the interchange and the Fort Scott Downtown Historic District. Instead this short segment of Wall Street should be redesigned as a boulevard that brings the quality and soul of the historic downtown out to the interchange.

The proposed street configuration would accommodate one lane of traffic in each direction with parallel parking, divided by a median that includes planting beds, thematic lighting, and enamalized metal graphic “banners”. Sidewalks set off by street trees strengthen the pedestrian environment and reinforce the link between the Buck Run Greenway and Downtown.

The proposed street configuration should take advantage of the mill and overlay project completed in October 2009. This project included an asphalt overlay and sidewalk improvements be-

tween US 69 and Old Fort Scott boulevard.

Redevelopment Site. The Wall Street project would also encourage redevelopment of a full-block site on the south side of Wall between US 69 and State Street. An excellent reuse possibility is a hotel to accommodate business and leisure travelers, with additional meeting and conferencing space. A city entrance at the State Street and Wall Street intersection would relate to the historic fort, the Chamber of Commerce office, and Downtown. The grade of the site could provide lower-level parking for a hotel or other desirable use.

Old Fort Boulevard Area. The existing configuration of Old Fort Boulevard and adjacent parking is confusing for visitors both in cars and on foot. The street includes two one-way parking drive aisles, separated by a median. The west bound drive requires motorists to negotiate a confusing group of driveways to exit at National Avenue, while access to the eastbound drive, serving adjacent businesses, is limited to Main

Street. The median between two roadways provides some green space, but is surrounded by adjacent parking and poorly connected to sidewalks. Finally, Main Street is a northbound, one-way street, making it very difficult for visitors of the fort to get to downtown businesses.

The plan proposes a complete redesign of this area which can still reuse most of the existing paving.

Features of this redesign include:

- Redesign of Old Fort Boulevard as a two-way street with head-in diagonal parking on both sides, aligning with Scott Street at its intersection with Wall Street and leading directly to National Avenue between Oak and Pine Streets.
- A companion two-way street with head-in parking, continuing along Oak Street east from National Avenue and terminating at Wall Street between Scott and Main Streets.

- A promenade park extending continuously from Scott and Wall to Oak and National, incorporating the historic block house. The promenade may have small plazas at regular intervals that include seating, public art, and historic displays. Past the block house, the promenade opens into a larger plaza, designed around a bugle-shaped water feature. This plaza would serve as a forecourt to the recently restored H.L. Stout Building at Oak and National Streets, and would connect north to a potential civic plaza and new city hall, reusing an existing utility office building.
- An improved Main Street access to the fort area, with a divided two way Main Street connecting to the reconfigured Old Fort Boulevard. This improved street connection would also include generous sidewalks and defined crosswalks, leading to a flag plaza and fountain on the Main Street axis.

- Reconfiguring parking design at the Chamber of Commerce office to a circular pattern that increases parking and provides better loading areas for the Chamber’s tourist trolleys.

Two-Way Main Street. Main Street’s relatively narrow section requires one-way northbound traffic to maintain two-sided diagonal parking. However, one-way traffic complicates circulation for visitors, and keeps people from traveling easily between the fort area and the rest of downtown. Two-way circulation on Main Street improves access to business and clarifies circulation routes, and can be accommodated with one-side diagonal parking with parallel parking on the opposite side. Providing additional convenient off-street parking with the redesign of the Fort Boulevard area, reuse of the “burn site” on the southeast corner of Wall and Main Streets and improved design and access of existing off-street parking more than compensates for the loss of on-street parking.



Present condition of plaza space looking towards Main Street from the Fort.



Proposed Boulevard Enhancements between the Fort and Downtown.

Multi-Use Carscape Plaza. The fate of the vacant site on the strategic southeast corner of Wall and Main Streets has been controversial, with some people understandably advocating new building development. However, given the large amount of available downtown commercial space, the district would receive greater benefit by restoring two-way circulation on Main and compensating for lost parking with new off-street parking on the “burn site.” However, a conventional surface lot is inadvisable because of the site’s importance in the district. Instead, this plan recommends an innovative multi-use “carscape”, designed for default use as parking, but designed to function as a public space for events such as farmers’ markets, festivals, performances, and art shows. Paving design, ideally incorporating permeable unit pavers, would use contrasting colors to define parking spaces. The edge of the lot would be defined by a permanent market shelter, continuing the building line and providing protected space for vendors and shade for downtown cus-

tomers. A u-shaped parking configuration provides back-up space for vendors and includes a small internal green that begins an alley pathway to the restored freight house and proposed State Street redevelopment site.

Alley Pathways. Pedestrians often use alleys for access to parking and short routes between two points. However convenient, alleys are primarily service areas for buildings, “landscaped” by loading docks and dumpsters. The downtown concept suggests an east-west alley pathway between Wall and 1st Streets, connecting the proposed carscape plaza and the restored freight house. This continuous landscaped pathway would preserve service access to buildings and parking lots, and provide opportunity for the development of rear facades that are very visible from downtown’s eastern approaches.

For pedestrian safety along downtown streets, alley intersections with sidewalks should be marked with caution signs that require motorists to yield to pedestrians.

Urban Townhouse and Multi-family Housing. Housing has been an important ingredient of downtown revitalization and the Downtown Fort Scott program should take advantage of opportunities for both new construction and adaptive reuse. Redevelopment of a row of deteriorated buildings along North National south of Pine Street could produce four urban townhomes or live/work units adjacent to the new “bugle park”. The northwest corner of 1st and State Street also provides an opportunity for apartment development.

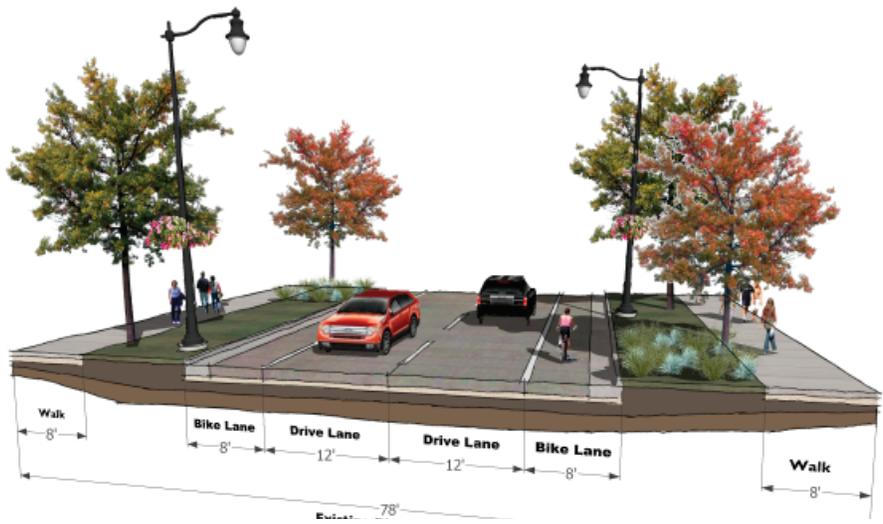
City Hall / Government Facility. Utility office buildings west of the Fort Scott historic site are being considered as a new home for city offices. The downtown concept provides an excellent setting for the reuse of these buildings for city offices and support services, including good parking support, excellent civic open space, and convenient downtown connections.



Present condition of the proposed Multi-Use Carscape Plaza at the east corner of Wall and Main Street.



Market square improvement.



South National District



Description

The South National Business District is a gateway to Fort Scott’s historic neighborhoods, and its development dates from the time when National Avenue was the route of US 69. Today, it is a cluster of retail and service businesses that serve local and traveler needs, and includes the city’s only movie theater. However, it is also a confusing series of difficult intersections, parking lots, and cross streets with no place to walk. The diagonal alignment of National Avenue across the street grid, the incremental scale of development, and the lack of landscaping or driveway definition contribute to this confusion and results in inefficient parking and site development.

However, South National could gain new economic vitality by redesign as a cohesive business district, rather than simply an unplanned cluster of businesses. In addition to serving local customers better, clarity to visitors and improved appearance will help the South National district attract customers from the nearby highway. The revitalization concept proposes safer and clearer traffic circulation, improvements to the public environment, improved business access, and new commercial development sites.

Program

The program for the South National District includes:

- Better vehicular access to the South National district from US 69.
- Better connections to the district from Fort Scott’s neighborhoods, and safer and clearer local circulation within the district.
- Increased parking created by more rational street and circulation patterns.
- Good pedestrian access through the district and to its businesses.
- New sites for commercial development.
- Clearer connections between the South National district and the National Cemetery, including strengthening the relationship between these two community assets.

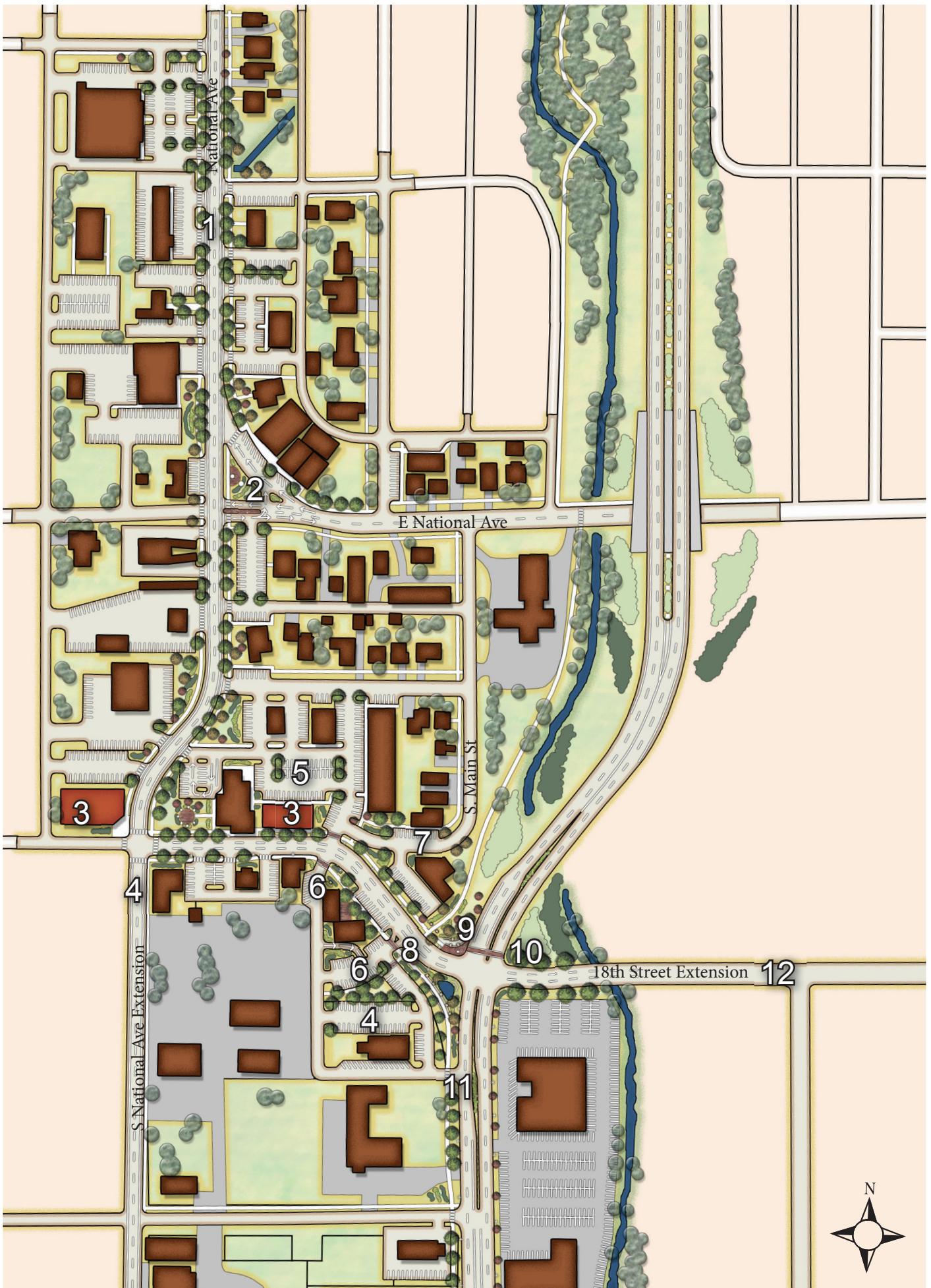


Figure 6.4 South National Business District Development Program

- | | |
|--|----------------------------------|
| 1 Street Improvements and bicycle lanes | 7 Main St. Connection and Access |
| 2 Enhanced E. National Intersection | 8 Trail Crossing |
| 3 New Development | 9 Gateway Feature |
| 4 S. National Ave Extension | 10 Potential pedestrian crossing |
| 5 Parking reconfiguration and new stalls | 11 New sidewalk access |
| 6 Parking Improvements | 12 18th Street Extension |



Present conditions, south National Business District looking north.

Components of the Concept

Traffic Circulation Improvements.

Improving confusing and hazardous traffic patterns is a vital step toward improving the usability of the district and increasing business potential. This will be accomplished by implementing the following changes:

- *Extending 18th Street as the primary connection to US 69 and vacations of parts of South National.* 18th Street, a principal route to Fort Scott Community College, now merges into South National through a super-elevated curve that leads to a confusing intersection with National Avenue and Jersey Street. Instead, 18th Street would become the primary east-west route to US 69, continuing east from a new intersection with South National and continuing southeast to a signalized 90-degree intersection with Highway 69. The realigned 18th Street could continue east toward Liberty Bell Road and form the basis for local street system to serve potential industrial development between US 69 and the BNSF Railway. With this change in access, part of the existing diagonal South National right-of-way between Jersey Street and US 69 would be vacated, to be redeveloped with new parking for the district and a new commercial development site.

- *Extend National Avenue south of 18th Street.* If 18th Street becomes the principal access to US 69, National Avenue, now a minor street south of 18th Street that bisects the R & R Equipment site can be extended as far south as 23rd Street. The National Avenue extension would relocate the street to the west, around rather than through the R&R site, and provide better connectivity between residential neighborhoods, South Main Street, and the community college. This street extension allows local residents access to these areas without using the main highway. In addition, this realignment and extension creates a new development site along 18th Street, provides more direct access to theater, and opens a significant development site east of the fairgrounds. Additional access can be provided to the new South National Avenue by extending 20th Street across US 69.

East National Avenue Intersection.

East National Avenue is the primary route to National Cemetery #1, and merges into northbound National Avenue on a curved alignment, creating a very awkward “Y” intersection marked by a directional obelisk. A redesign of this difficult intersection will both showcase the historic cemetery and simplify access for visitors. This small but important project would:

- Extend East National directly west to create a standard 90-degree intersection at 17th and National
- Subordinate the existing East National curve as a free westbound to northbound right turn with head-in parking to serve adjacent businesses.
- Provide a left-turn from eastbound East National to serve businesses on the curve.
- Develop a median with a garden around the directional obelisk.

Parking Improvements. The proposed street system changes greatly increase the efficiency of parking lots, resulting in standard lots that also include green space and sidewalks. In addition, vacation of portions of South National adds a large new parking lot that serves surrounding businesses.

Pedestrian/Bicycle Improvements. The project should create a more pedestrian-friendly business district by:

- Establishing a curb line and defining driveway entrances.
- Providing sidewalks along all streets, setback from the curb with tree lawns and street trees.
- Establishing bicycle lanes along National Avenue.
- Connecting the Buck Run Trail into the South National district’s sidewalk system.



South National Business District improvements.



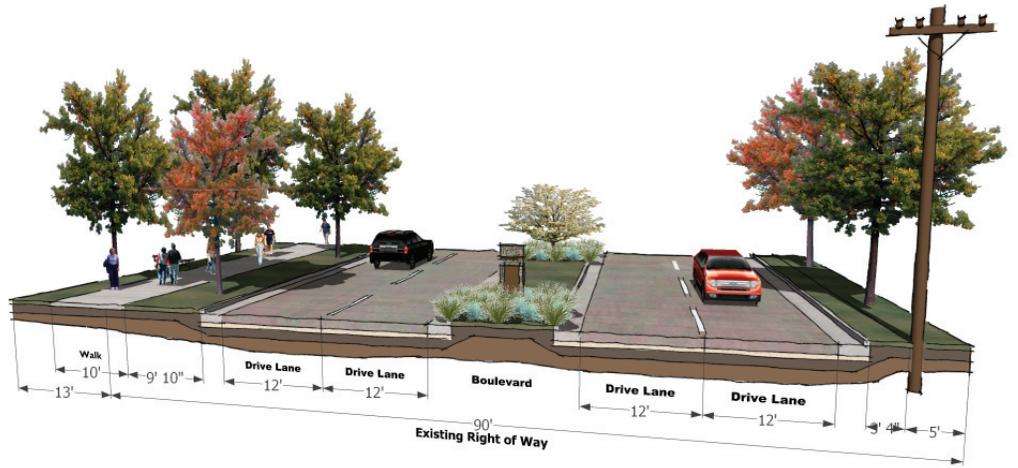
US 69 and 18th Street extension intersection improvements.

- Developing a landscaped area and district gateway at the new 18th Street/US 69 intersection.

18th Street Developments. In addition to improving traffic flow and increasing parking in the district, the street realignment creates two substantial commercial development sites along the north side of 18th Street. Further, a triangular parcel on the west side of the VFW Hall, created by the realignment of National Avenue to the west, could become a Veterans Plaza, with a central memorial feature. The design of this space may include flags, landscaping, decorative paving, and statuary to honor Fort Scott residents who have served in the armed forces.



US 69 improvements at 18th Street extension looking northwest.



South Main Corridor



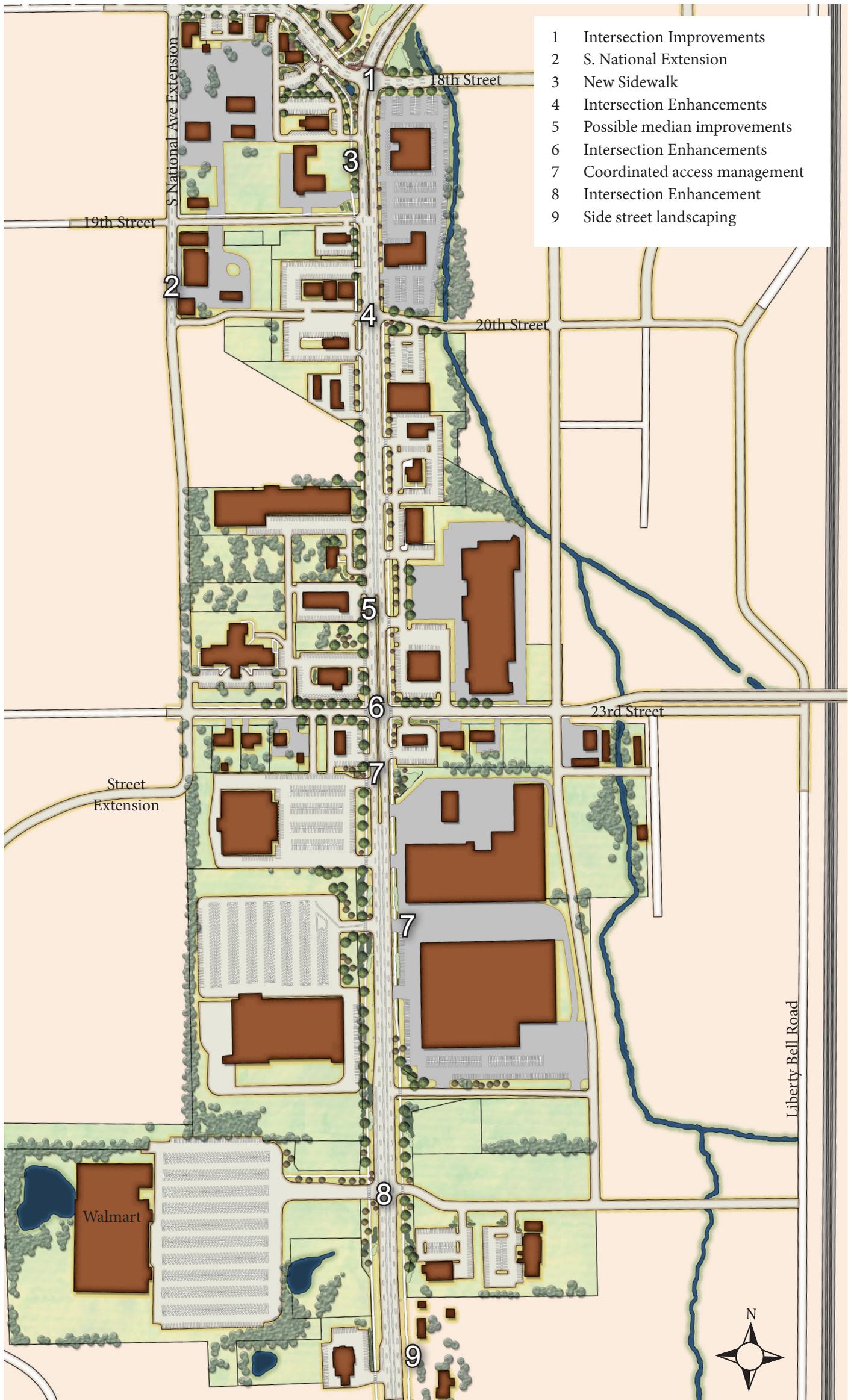
Description

South Main, (US 69 between South National and Jayhawk Road) is Fort Scott's contemporary automobile-oriented commercial corridor, including large-scale retailing, restaurants and services, Mercy Medical Center, and other office and industrial uses. Improvements are designed to improve the highway's dual function as a regional arterial and a commercial street by creating a better public environment, connecting the corridor to the proposed trail and greenway system, creating alternative routes that filter local traffic from the regional main line, and providing better use of land and development sites.

Program

The program for the South Main Corridor includes:

- Improving the quality of the roadway environment.
- Providing reasonable accommodations for pedestrians and bicycles, using those modes to reach corridor destinations.
- Reducing traffic friction to maximize the capacity and smoothness of traffic operations along US 69.
- Opening new areas for economic development on the south side of Fort Scott.
- Improve traffic circulation and safety through access management and efficient design of parking lots.



Map 6.5 South Main Corridor Improvement Program



Present condition, looking north on US 69 South Main Business District.



Cross-sectional improvements along South Main Business District.

Components of the Concept

Road Section Changes. Other parts of this document have discussed the transportation performance of this southern urban section of US 69. Given existing traffic volumes, crash history, and adjacent land uses, this plan recommends widening the urban section to a five-lane facility with a center left-turn or, in specific areas, a raised median with protected left-turn lanes. Medians, where they exist, should be appropriately landscaped.

Access Management and Parking Lot Design. Consolidation of driveway access points to US 69 where possible can decrease traffic friction and improve safety for motorists and, with future pathway development, pedestrians and bicyclists. Additionally, access management increases the efficiency of parking lots by reducing duplicative circulation.

The South Main plan map illustrates a concept for access management and parking lot redesign. A more detailed plan, worked out individually with business and property owners to meet their access needs, should be developed as part of the design process for eventual improvements along the US 69 corridor.

Street Landscaping and Sidepaths. The US 69 right-of-way between the future 18th Street intersection and Jayhawk Road provides enough space for a ten-foot sidepath with shoulders and a generous parkway strip between the highway and the path. Utility lines, adjacent uses, and right-of-way configuration suggest that these improvements should occur on the west side of the road. Landscaping in the parkway strip should include both overstory trees and low-level ornamental landscaping.

The sidepath would connect to the Buck Run Trail system and becomes an important part of the road's multi-modal transportation function. However, careful sidepath design is critical to avoid hazards to pedestrians and cyclists at street and driveway intersections. Sidepaths should cross intersections either relatively close to the roadway to provide maximum visibility to motorists, or set back far enough to enable turning traffic to see and respond to sidepath users. Sidepath crossings should be clearly marked and warning signs employed that indicate the parallel trail facility. Lower scale lighting along the pathway and graphics establishing a city and corridor identity can also add scale and identity to the corridor as both a commercial environment and a gateway to the city.



Possible development site on northside of 18th Street.



Looking south on U.S. 69 and possible sidepath.

Alternative Routes. North-south access for local traffic to and through the South Main district depends largely on US 69. An improved local street network provides alternative routes for local traffic, dedicating more of the highway capacity to through movement and improving the service that it offers. Projects in the South Main area that build a local street network include:

- Extension of National Avenue south to 23rd Street.
- Extension of 20th Street west to Horton Street.
- With redesign of the South National street system, continuation of 18th across US 69 to Liberty Bell Road.
- A north-south “rearage” road on the east side of US 69.
- Possible continuation of the South National extension to Horton Street north of the hospital.

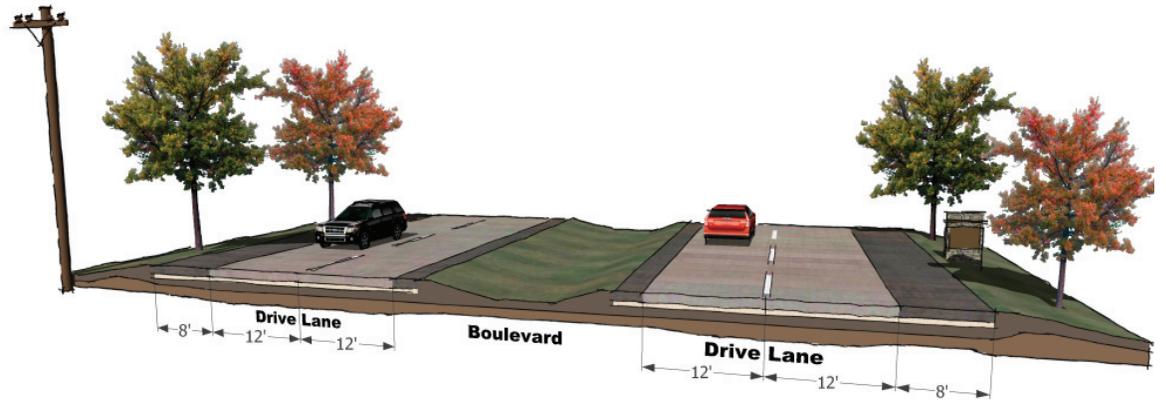
New Development Sites. The combination of better through access created by continued improvement to US 69 between Kansas City and Tulsa; a local street network; and a high-image road environment places the south corridor in a position to attract more employment-based development. Potential sites proposed by this plan for development include:

- Completion of the Bourbon County Industrial Park.
- New industrial and business park development on open land between the BNSF and a proposed rearage road between the extended 18th Street and 23rd Street.
- Commercial and mixed use development east of the Bourbon County Fairgrounds between the extended South National Avenue and US 69.

- Office and mixed use development adjacent to the Cigna campus, opened by a possible extension of South National Avenue south of 23rd Street to Horton Street.

The south corridor land use concept, presented in Chapter 5, indicates these sites and incorporates them into traffic projections and transportation planning for US 69.

Great Circle Connection. The southern arc of the Great Circle concept would connect the riverfront (or “blue” arc) with the highway (or “red” arc) through the Fort Scott Community College campus and the fairgrounds. Development between the fairgrounds and the highway or a westward extension of 20th Street should provide a greenway corridor to complete the circle.



Rural Transition



Description

The US 69 corridor's character changes as the highway enters the county. The Bourbon County Industrial Park is adjacent to the east side of the corridor south to the Highway 7 interchange, and is largely undeveloped between Hickory and Hackberry Roads. The west side of the highway has scattered industrial and commercial use (including vacant commercial buildings), is largely open. The corridor is in agricultural use south of Highway 7 to the county line.

While US 69 will be upgraded to a four-lane facility south of Highway 7, the issue of whether the road will be developed to expressway (with limited surface access) or freeway (with interchange access only) standards is unresolved. Bourbon County does not currently exercise zoning or land use control, opening the possibility of unmanaged development that may affect the quality and function of the corridor.

Program

- Provide a positive county and community image for northbound traffic entering Fort Scott.
- Manage storm water.
- Preserve the open character of the rural landscape.
- Prevent unsightly or unplanned commercial or industrial development.

Components of the Concept

Land use management. The city and county should develop a framework for development management along the highway corridor. This starts with defining desirable land use of the US 69 frontage. The plan proposes:

- A continuation of the existing industrial and business use pattern between US 69 and the BNSF within the Bourbon County Industrial Park south to the Highway 7 interchange. The industrial park has adequate infrastructure and internal access to support industrial use. Development within this planned industrial area should:
 - Orient loading and service areas away from direct highway view to the maximum degree possible.
 - Provide substantial landscaping adjacent to the highway right-of-way.
 - Continue to provide internal access to individual industries in the park, with direct access to US 69 limited to section line roads and one intermediate access, as near as possible to the half-section if an expressway section is constructed.
 - Limit industrial owners to enterprises that do not generate measurable external environmental effects (hazards, noise, odors, or light) beyond their immediate property lines. Prohibit salvage yards or other operations with exterior storage of salvage or raw materials.
 - Establish stormwater management standards that either detain stormwater from a 10-year design storm within the boundaries of an individual parcel or, alternatively, includes regional management that includes all or part of the industrial park.
- Limitation of industrial and commercial development along the west frontage of US 69 between Jayhawk and Highway 7 to parcels that have previously established commercial and industrial uses without ap-



Present condition, looking north along US 69 near Jayhawk Road.



Improved Gateway to Fort Scott, Kansas.

proval of special permits by both Bourbon County and the City of Fort Scott. Require all such commercial and industrial uses to meet the restrictions proposed above for properties in the Industrial Park.

- Restriction of adjacent uses to agriculture and accessory agricultural uses between Highway 7 and the county line.

Implementation of these guidelines requires:

- A US 69 special development district within the county jurisdiction, created by Bourbon County that includes ordinance language to identify specific use and development restrictions.
- An intergovernmental agreement between the county and city to address administration of the special development district. One option is administration of the district by the City, with approval of special permits and other legislative actions by the county board. The Kansas Department of Transportation may

also be a signatory to the agreement.

These requirements are intended to control unmanaged or premature development along the corridor. Conditions will inevitably change over time, and the special development district's limitations and guidelines should respond to these changes. For example, considerable support exists for developing US 69 to freeway standards south of Fort Scott. If this occurs, interchanges produce points of maximum access that produce unusual opportunities without affecting US 69 traffic operations.

The county and city should make appropriate modifications to the district, based on a specific area plan that addresses land use, environmental management, access, and appearance of property around the interchange.

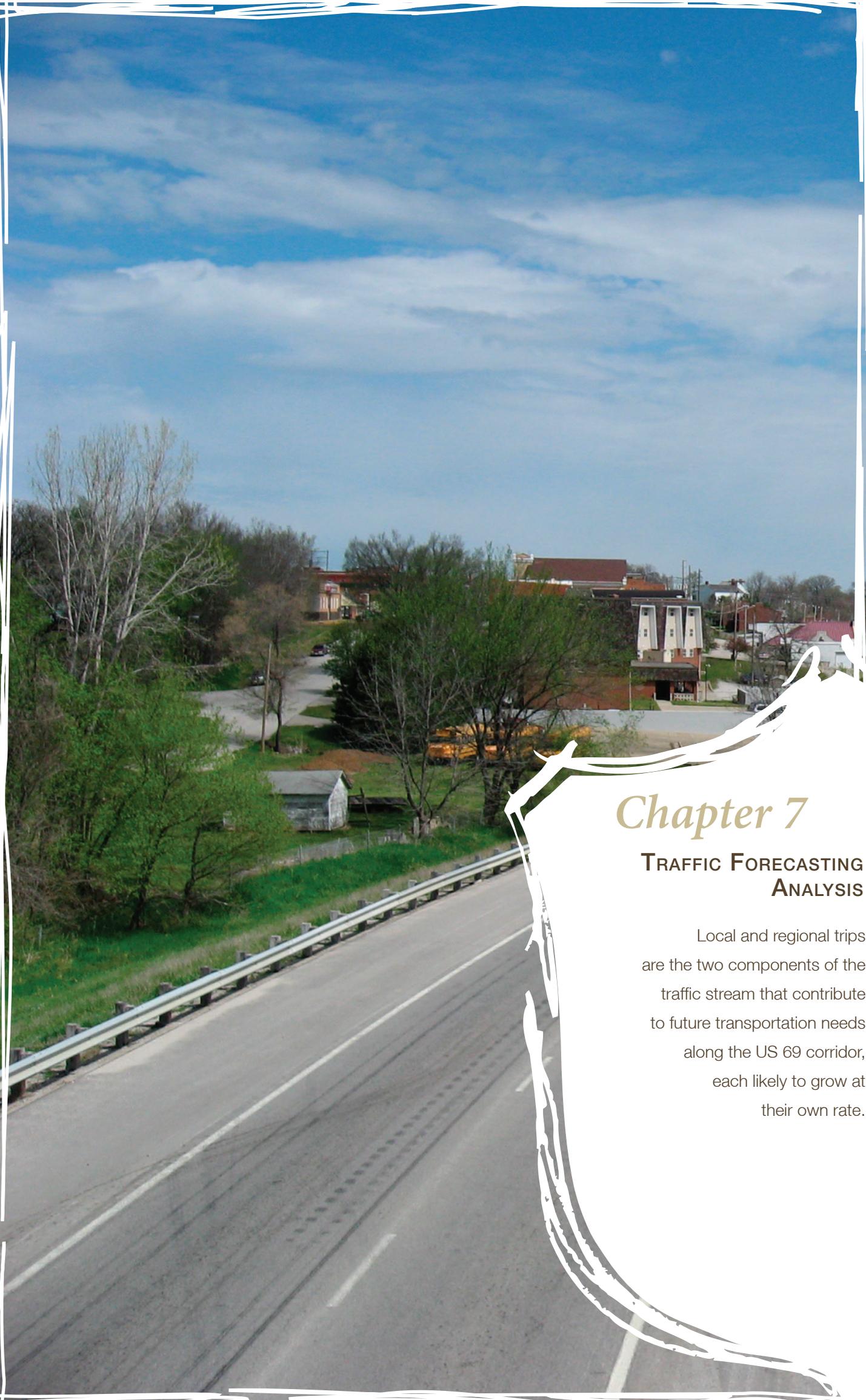
Stormwater management. Improvements to US 69 should incorporate best practices that manage stormwater runoff within the highway right-of-way.

Techniques include bioswales in the median, permanent water features, wetlands remediation areas, and retention/detention facilities within the right-of-way and adjacent public areas.

Design Features. Design features and themes that are intensively developed in the city should be introduced in the rural part of the corridor. Specific concepts include:

- A gateway monument at the county line, using the aesthetic vocabulary of native materials used throughout the corridor.
- Similar monument markers at intersections that lead to other significant features, such as Lake Fort Scott.
- Ornamental plantings clustered at regular intervals along the roadway. These intervals would become shorter as the traveler approaches Fort Scott.





Chapter 7

TRAFFIC FORECASTING ANALYSIS

Local and regional trips are the two components of the traffic stream that contribute to future transportation needs along the US 69 corridor, each likely to grow at their own rate.

FUTURE REGIONAL GROWTH

Local and regional trips are the two components of the traffic stream that contribute to future transportation needs along the US 69 corridor, each likely to grow at their own rate. Based on a review of KDOT historic daily traffic count data along US 69, regional traffic can be expected to grow about 0.9 percent annually in the study area. **Table 7.1** shows the annual growth rates along US 69 over the past eight years, from 2000 to 2008.

This time period provides enough historical perspective to understand past trends and provide a sound basis for future projections.

Two count locations were selected in each county to provide a good sampling of data along the US 69 corridor. As **Table 7.1** shows, the growth rate between passenger cars and trucks has differed over the past eight years. While overall traffic growth on US 69 the vicinity of Fort Scott in Bourbon County has been negligible, truck volumes have increased while car volumes have decreased. To account for these differences, this study uses two different growth rates to forecast future volumes.

The first growth rate applied to the total traffic volumes (including both cars and trucks) collected in early 2009 is 0.25 percent per year. This rate produces a conservative estimate of future traffic along US 69 through Fort Scott since it exceeds historic growth rates in Bourbon County. Any significant growth in car traffic on US 69 will probably be caused by new development discussed in Chapter Five.

The second scenario applies a 1.5 percent annual growth rate to heavy vehicle traffic only. As with car related traffic growth, some of this future growth is associated with new development in the Fort Scott area. Therefore, the 1.5 percent growth rate produces a conservative forecast for background traffic related to trucks.



The annual percentage growth rates were calculated with the following equation:

$$\text{PercentGrowth}(2000 - 2008) = \left(\frac{\text{Year2008 ADT}}{\text{Year2000 ADT}} \right)^{\left(\frac{1}{8} \right)} - 1$$

The compilation of these two growth rates in the traffic forecasting produces an annual growth rate slightly over 1 percent growth from 2009 to 2040, similar to the historic growth in the region on US 69 over the last eight years. **Table 7.2** shows a comparison of the existing daily traffic volumes on US 69 through Fort Scott to the projected 2040 traffic volumes that account for expected regional growth.

Figure A.6 in **Appendix A** exhibits the resulting traffic volumes for the 2040 No-Build Scenario, accounting for regional background growth.

NEW TRIP GENERATION

Proposed land use information for the 2040 analysis horizon was based upon the future land use plan presented in Chapter Five. The majority of the new/redeveloped land uses within Fort Scott will be located in the southern part of the city between Horton and Margrave Streets, from East National Avenue to Jayhawk Road. The land use information shown in **Table 7.3** was used to develop daily trip generation information for new/redeveloped areas within the study area.

The floor area totals shown for each land use were converted into daily trips, using typical planning assumptions for the number of trips typically generated per employee or per thousand square feet of development. These rates are shown in **Table A.1** in **Appendix A**.

Once the daily traffic was determined, the PM peak hour vehicle trip generation was calculated based on a comparison of daily and PM trip rate information provided in Trip Generation, 8th Edition, Institute of Transportation Engineers. **Table A.2** in **Appendix A** shows a summary of the information calculat-

ed from the trip generation manual that was used in this analysis.

FUTURE TOTAL TRAFFIC VOLUMES

Vehicle-Trip Distribution

Once the trips related to the new development expected within Fort Scott were calculated, a traffic model was developed with the use of the analysis program Traffix to distribute the new traffic to the roadway network. A set of distribution percentages for each type of land use (e.g., residential, retail, office etc.) to various parts of town and regionally on US 69 and US 54 were developed in order to distribute traffic throughout the forecasting model. **Table A.3** in **Appendix A** illustrates the various distribution percentages by land use type.

2040 Ultimate Traffic Volumes

The new trips from the expected future land uses in Fort Scott were added to the 2040 No-Build Traffic Volumes forecast shown in **Appendix A** on **Figure A.6** and the resultant 2040 Ultimate Traffic Volumes are shown on **Figure A.7**. As regional background growth and new development occurs over the next thirty years, total daily traffic volumes along US 69 through Fort Scott are expected to grow at a rate of approximately 1.3 to 2.0 percent per year. **Table 7.4** shows the growth expected on US 69 through Fort Scott with the addition of new traffic from the expected future land uses.

The resulting average daily traffic (ADT) volumes for the 2040 Ultimate Traffic Volume Scenario are shown on **Figure 7.1**. The PM peak traffic volumes shown on **Figure A.7** are the basis for the 2040 Ultimate operational analyses completed for this study.



Table 7.1 Historic Regional Growth on US 69

	Cars			Trucks			Total		
	Year 2000 Daily Traffic Volume	Year 2008 Daily Traffic Volume	Percent Growth (2000-2008)	Year 2000 Daily Traffic Volume	Year 2008 Daily Traffic Volume	Percent Growth (2000-2008)	Year 2000 Daily Traffic Volume	Year 2008 Daily Traffic Volume	Percent Growth (2000-2008)
Miami County	6,345	6,390	0.1%	1,315	1,440	1.1%	7,660	7,830	0.3%
	5,855	6,330	1.0%	1,200	1,290	0.9%	7,055	7,620	1.0%
Linn County	3,455	3,500	0.2%	1,095	1,210	1.3%	4,550	4,710	0.4%
	3,640	3,190	-1.6%	825	1,030	2.8%	4,465	4,220	-0.7%
Bourbon County	4,160	3,920	-0.7%	950	1,210	3.1%	5,110	5,130	0.0%
	7,750	7,590	-0.3%	1,100	1,300	2.1%	8,850	8,890	0.1%
Crawford County	3,715	4,600	2.7%	810	1,010	2.8%	4,525	5,610	2.7%
	3,895	4,830	2.7%	825	1,030	2.8%	4,720	5,860	2.7%
Cherokee County	4,660	4,720	0.2%	710	1,080	5.4%	5,370	5,800	1.0%
	3,735	4,325	1.9%	790	955	2.4%	4,525	5,280	1.9%
Regional Growth	47,210	49,395	0.6%	9,620	11,555	2.3%	56,830	60,950	0.9%

Source: Kansas Department of Transportation

Table 7.2 Comparison of Daily Traffic with Regional Growth (2040 No-Build)

Location on US 69	Existing	Year 2040	Annual Percent Growth
South of Jayhawk Rd.	7,100	9,700	1.01%
North of 23rd St.	18,200	24,900	1.02%
North of 12th St.	11,900	16,250	1.01%
North of Wall St.	9,000	12,300	1.01%
North of US 54	5,100	7,000	1.03%

Table 7.3 2040 Vehicle Trip Generation

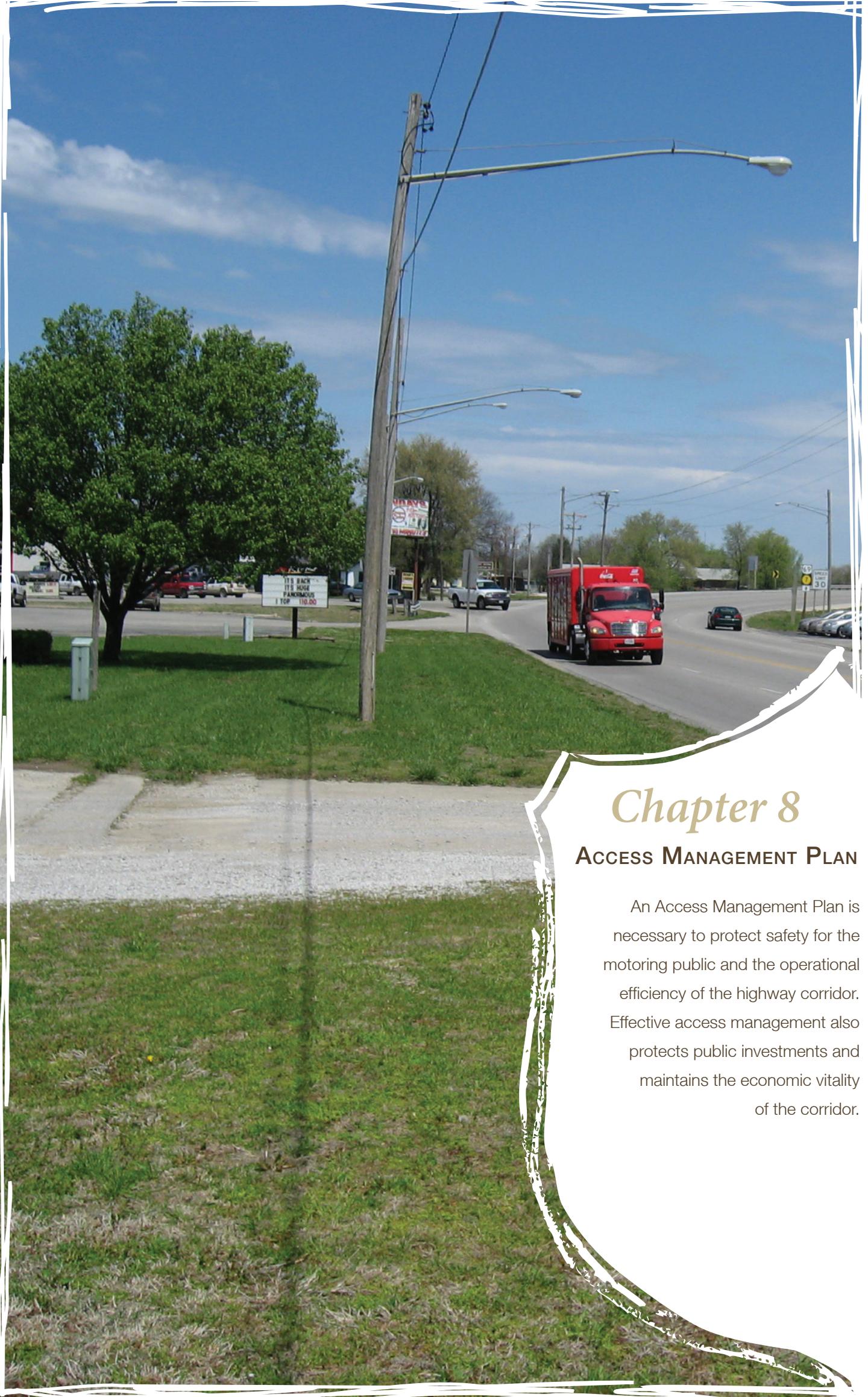
Land Use Type	Size	Daily Trips	PM Peak Hour		
			Total	Inbound	Outbound
Commercial - Retail New	121,153 SF	5,210	453	222	231
Commercial - Light Industrial Removed	-96,475 SF	-579	-81	-10	-71
Commercial - Light Industrial New	121,817 SF	1,310	182	22	160
Commercial - General Industrial New	841,126 SF	1,682	234	28	206
Commercial - Office New	141,840 SF	1,063	143	24	119
Residential New	433 units	3,464	365	230	135
Total Trips Due to New Land Use		12,150	1,296	516	780

Table 7.4 Comparison of Daily Traffic with Regional Growth and New Land Uses (2040 Ultimate)

Location on US 69	Existing	Year 2040	Annual Percent Growth
South of Jayhawk Rd.	7,100	10,300	1.2%
North of 23rd St.	18,200	30,000	1.6%
North of 12th St.	11,900	22,500	2.1%
North of Wall St.	9,000	13,500	1.3%
North of US 54	5,100	7,600	1.3%







Chapter 8

ACCESS MANAGEMENT PLAN

An Access Management Plan is necessary to protect safety for the motoring public and the operational efficiency of the highway corridor. Effective access management also protects public investments and maintains the economic vitality of the corridor.

INTRODUCTION

An Access Management Plan is necessary to protect safety for the motoring public and the operational efficiency of the highway corridor. Effective access management also protects public investments and maintains the economic vitality of the corridor. In contrast, uncontrolled access generally impedes development and produces high costs when retrofits are needed.

Figure 8.1 illustrates the relationship between the amount of access provided and the facility type. Most of US 69 within the study area operates in the upper range of this graph, somewhere between Freeway and Major Arterial. North of the intersection with South National Avenue and south of the intersection with Jayhawk Road, access to the highway is limited to major cross streets and, for the most part, adequately spaced driveways. The US 69 segment between Jayhawk Road and South National Avenue operates more like a Major Arterial, with considerably more access provided to the adjacent businesses and properties.

It is widely accepted that good management of driveway access to major arterials improves safety, promotes more efficient road operation, and extends the capacity of roads. KDOT's

current **Corridor Management Policy**, updated in January 2003, provides local jurisdictions with criteria and procedures that both realize these benefits and maintains reasonable access to adjacent properties. This Access Management Plan applies these tools to US 69 in the Bourbon County study area.

Appropriate action on driveway access permits depends on the following criteria:

1. Providing reasonable access from the roadway to the property.
2. Maximizing the separation between the driveway approach and other driveway approaches and intersections.
3. Minimizing the number of conflict points between vehicles entering and exiting driveways and through traffic.
4. Minimizing conflicts between vehicles entering and exiting driveways and pedestrians using the public right-of-way.
5. Keeping the difference in speeds between the vehicles using driveways and through vehicles as low as practical.
6. Providing unobstructed visibility between vehicles entering or leaving the roadway at a driveway and other vehicles using the roadway.
7. Providing maximum safety and efficiency of turning vehicles using the driveway.
8. Minimizing the frequency of through vehicles forced to stop or substantially reduce speed because of vehicles entering or leaving the roadway approach.

This chapter summarizes access management principles, explains how these

principles achieve access management goals, and makes recommendations for access modifications, based on existing conditions on US 69.

PRINCIPLES OF ACCESS MANAGEMENT

City, county, and state governments can use their powers to protect public health, safety, and welfare to manage road access. Management programs can apply equally to all parts of the study area, or be established within specific areas using tools such as overlay districts. Access management ultimately involves the beneficial regulation of traffic flow, reducing conflicts between vehicles operating at different speeds or for different objectives.

According to the Transportation Research Board's **Access Management Manual**, access management programs limit and consolidate access along major roadways, while promoting a supporting street system and convenient local circulation systems to serve development. Effective management strategies provide adjacent owners with reasonable and often qualitatively improved access to their property from the area's street network. Access (connection with surrounding roadways) and routing (direction of flows between properties and surrounding roadways) are different components of system management and are controlled differently.

The following principles guide effective access management:

1. **Provide a Specialized Roadway System:** Different types of roadways serve different functions. It is important to design and manage roadways according to the primary functions that they are expected to serve.

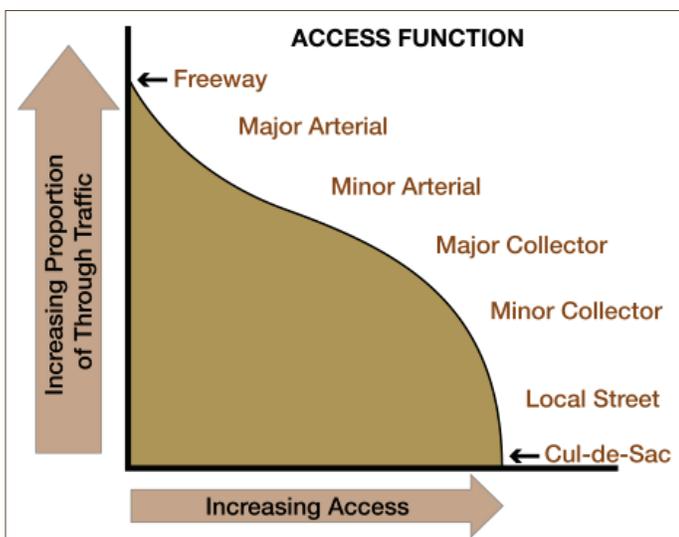


Figure 8.1 Access Functional Hierarchy



Access locations on northbound US 69.

2. **Limit Direct Access to Major Roadways:** Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function. Frequent and direct property access is more compatible with the function of local and collector roadways.
3. **Promote Intersection Hierarchy:** An efficient transportation network provides appropriate transitions from one classification of roadway to another. For example, freeways connect to arterials through an interchange that is designed for the transition. Extending this concept to other roadways results in a series of intersection types that range from the junction of two major arterial roadways, to a residential driveway connecting to a local street.
4. **Locate Signals to Favor Through Movements:** Long, uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensures continuous movement of traffic at the desired speed. Careless or unmanaged access connections or median openings that later become signalized often cause substantial increases in arterial travel times. In addition, poor signal placement can lead to delays that even computerized signal timing systems cannot correct.
5. **Preserve the Functional Area of Intersections and Interchanges:** The “functional area” of an intersection or interchange is the area that is critical to its safe and efficient operation, where motorists are responding to the intersection or interchange, decelerating, and maneuvering into the appropriate lane to stop or complete a turn. Access connections too close to intersections or interchange ramps can cause serious traffic conflicts that result in crashes and congestion.
6. **Limit the Number of Conflict Points:** Drivers make more mistakes and are more likely to have collisions when they are presented with complex driving situations created by numerous conflict points. Conversely, simplifying the driving task helps improve traffic operations and reduce collisions. A simplified driving environment is accomplished by limiting the number and type of conflicts between motor vehicles, vehicles and pedestrians, and motor vehicles and bicyclists.
7. **Separate Conflict Areas:** Drivers need sufficient time to address one set of potential conflicts before facing another. The necessary spacing between conflict areas increases as travel speed increases, to provide drivers adequate perception and reaction time. Separating conflict areas helps to simplify the driving task and contributes to improved traffic operations and safety.
8. **Remove Turning Vehicles from Through Traffic Lanes:** Turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area for an opportunity to complete a turn. This reduces the severity and duration of conflict between turning vehicles and through traffic and improves the safety and efficiency of roadway intersections.
9. **Use Non-traversable Medians to Manage Left-Turn Movements:** Medians channel turning movements on major roadways to controlled locations. Research shows that the majority of access-related crashes involve left turns. Therefore, non-traversable medians and other techniques that minimize left turns or reduce the driver workload can be especially effective in improving roadway safety.

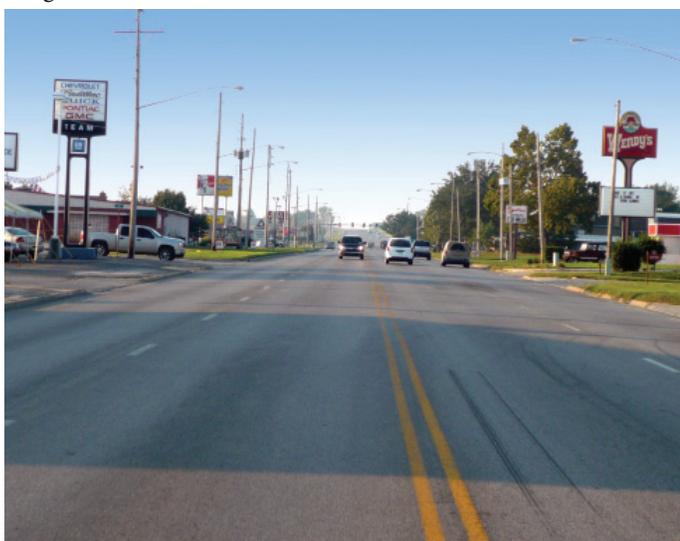
10. **Provide a Supporting Street and Circulation System:** Well-planned communities provide a supporting network of local and collector streets to accommodate development, as well as unified property access and circulation systems. Interconnected street and circulation systems support alternative modes of transportation and provide alternative routes for bicyclists, pedestrians, and drivers. Alternatively, commercial strip development with separate driveways for each business forces even short trips onto arterial roadways, thereby reducing safety and impeding mobility.

Access Management Strategies

While short-term reductions in access points along US 69 may be difficult, an Access Management Plan is important to guide actions on future access requests, and direct the consolidation of access points with roadway improvements or when opportunities emerge.

KDOT, as the agency responsible for managing access to US 69, may initiate driveway approach modifications if:

1. Continued use of the driveway approach imposes an unreasonable burden on the free flow of and movement of traffic.
2. The roadway is being reconstructed, repaved, relocated, or redesigned.
3. The driveway approach is defective in construction, in a deteriorated condition, or deviates from permit terms.
4. The property served by the driveway is developed, redeveloped, or changes in land use.



Multiple access locations along southern commercial corridor in Fort Scott.



Driveways have been consolidated along some stretches of US 69 to provide adequate spacing.

This Access Management Plan recommends the following actions at appropriate places within the US 69 Corridor to ensure safer, smoother traffic movement along this important highway.

Closing Access Points

Improving the urban section of US 69 to meet access control standards is a gradual process. KDOT, Fort Scott and Bourbon County should seek and take advantage of opportunities to eliminate access at locations other than those proposed in this Management Plan.

Establishing Shared Access Points

The plan strongly encourages joint access to the highway and local street network by adjacent property owners. When the city and county review development applications, they should consider, as a condition of approval, a grant of a recorded easement by the applicant to adjoining property owners or other appropriate conditions that meet access management goals. In addition, consolidating two adjacent property access points into one shared point produces a more efficient highway system and often can increase the parking supply and efficiency of internal circulation. Incentives should be offered to encourage voluntary access consolidations.

Approval Processes And Conditions

KDOT has the authority to permit access to a state highway or city connecting link, consistent with its Corridor Management Policy. The Department approves and controls access requests by issuing a Highway Permit, which is a legal document that establishes conditions of access granted to the landowner. All points of access to the state highway system are governed by a Highway Permit, including installation, relocation, improvement, removal, or replacement

of access connections, local streets, and intersections. Conditions of the permit include the location of the point of access, construction-related issues, permitted uses at the access point and other conditions and limitations. A request for a Highway Permit is made with the appropriate KDOT Area Office.

Fort Scott and Bourbon County approve access to local roadways. The city and county should enforce the Access Management Plan to control local road access using zoning and subdivision regulations. These provisions may be established through a corridor overlay district, establishing special conditions for development in the area. On city connecting links, a Highway Permit must be obtained for work in the right-of-way. Executed copies of the permit, approved by KDOT and the city or county will be provided to the property owner.

Coordinating Access Management

Because of the importance of access management on US 69 and the governmental relationships and responsibilities discussed earlier, Fort Scott and Bourbon County must consult with KDOT on development applications that propose access points on the mainline highway and on portions of the local street network that are included in the US 69 Corridor Management Plan.

The US 69 Corridor Management Plan recommends existing access points on the highway that should be closed or consolidated over time, as appropriate circumstances present themselves, to achieve these access management objectives. The city and county should cooperate with KDOT to identify existing access points that can be eliminated or consolidated. Early coordination with KDOT at the site plan and preliminary plat stages is especially important.

EXISTING ACCESS CONDITIONS

Previous chapters have discussed the different contexts of US 69 and the study area. As an element of the National Highway System, US 69 is classified as a Class “B” Route classification, protected by allowing direct access only when alternative access is unfeasible. The three contexts described previously – the urban, mixed use, and rural transition segments – are used to define access management zones, each with individual characteristics and management challenges. Descriptions of access management objectives for each zone are summarized below. Chapters Four and Five describe these segments in greater detail.

Urban Corridor: US 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. The access characteristics along this fully controlled segment are described in Chapter Four.

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 largely commercial segment lacks a left-turn lane or pedestrian and bicycle access. South of 23rd Street, the section transitions to a five-lane section, and access points generally meet KDOT access spacing criteria.



Access consolidation is also necessary on segments of South National Avenue, near the intersection with US 69.



Driveway access to adjacent properties is not provided along the urban corridor in Fort Scott.

Rural Corridor: Jayhawk Road To Bourbon/Crawford County Line

Between Jayhawk Road and the interchange the K-7 interchange, US 69 is a four-lane divided section with access at approximately ¼ mile spacing. This section was constructed to expressway standards, providing at-grade intersections and driveways. South of K-7, US 69 is a two-lane rural section through agricultural land, with access points at ½ mile intervals and county roads.

Access Spacing

Table 8.1 enumerates access points located within each segment by direction. Any driveway or cross street located on the right side of the roadway in the direction of travel is considered an access point. The mixed use (or South Main) corridor segment has a large number of access points compared to the other context segments. Calculating the average number of accesses per mile provides a basis for uniform comparison of segments with each other and with national standards. For example, the Mixed Use Corridor, with a length of 0.97 miles, has 21 access point/mile northbound and 24 access points/mile southbound.

Table 8.1 also summarizes the existing and desirable access spacing within each segment. The only recommended changes in access location and spacing are within the Mixed Use Corridor, where the recommended spacing between access points is at least 300 feet. These recommended changes are discussed in more detail in the following section.

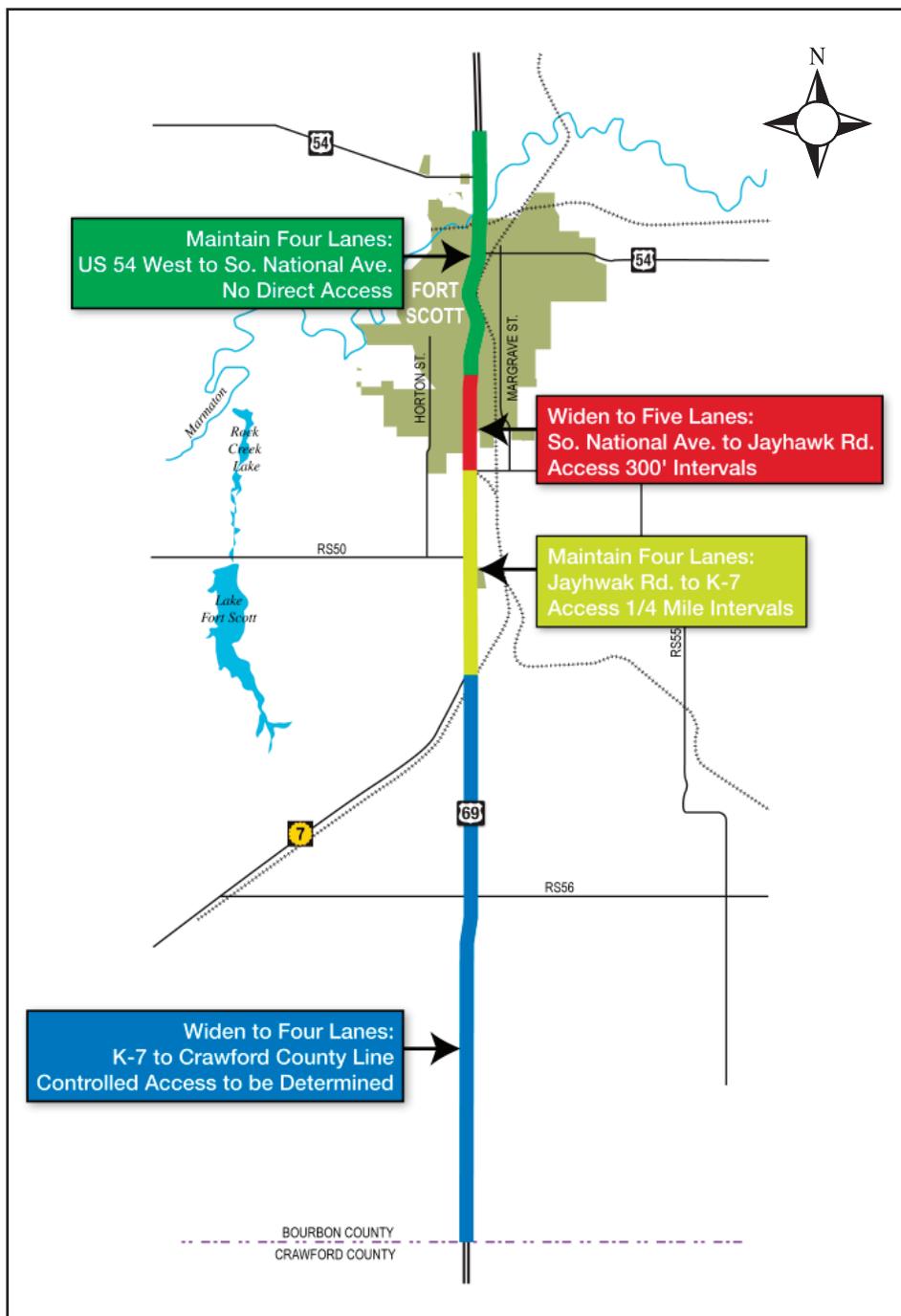


Figure 8.2 Corridor Access Spacing Recommendations (4 Segments) by FHU

Table 8.1 Existing Access Spacing Conditions

	Urban Corridor ¹	Mixed Use Corridor ²	Northern Rural Corridor ³	Southern Rural Corridor ⁴
Northbound Access Points	7	21	6	13
Northbound Access Points/Mile	2.4	21.0	2.4	2.0
Southbound Access Points	7	24	9	10
Southbound Access Points/Mile	2.4	24.0	3.6	1.5
Existing Access Spacing	660 – 3300 Feet	70 - 300 Feet	1/4 Mile	1/2 Mile
Desirable Access Spacing	660 – 3300 Feet	Not less than 300 Feet	To Be Determined ⁶	To Be Determined ⁶

¹Urban Corridor: US 54 to So. National Ave.

²Mixed Use Corridor: So. National Ave. to Jayhawk Road

³Northern Rural Corridor: Jayhawk Road to K-7

⁴Southern Rural Corridor: K-7 to Bourbon/Crawford County Line

⁵The existing interchanges and signalized intersections must remain in their present location

⁶KDOT is currently studying this section of US 69 to determine facility type.

Table 8.2 Summary of Access Management Strategies along US 69

Tool	Description	Recommended Locations (Graphic)	Jurisdiction
Close Mainline Median Breaks	Eliminate existing median breaks to prohibit left turns to/from mainline and abutting properties. (Consult with District Engineer)	300' north and south of 23 rd Street Between realigned 18 th Street and 19 th Street	KDOT
Consolidate Private Driveways	Eliminate redundant driveway connections to mainline into single driveway connection, either within an individual tract or at property line of contiguous tracts.	Multiple locations between 19 th and 23 rd Streets	KDOT FORT SCOTT
Eliminate Private Driveways/ Provide Side-Road Access	Where property owner has frontage on both mainline and side-road, eliminate mainline driveway and restrict access to side-road.	All locations fronting the highway within the South National Business District	KDOT FORT SCOTT
Eliminate Public Road Connections to Mainline, Re-Connect to Frontage Road	Where local roads connect to mainline at locations other than mile roads, eliminate connection between mainline and local cross-road, re-connecting cross-road to newly installed frontage or reverse frontage road.	Not recommended	KDOT FORT SCOTT
Eliminate Private Driveways, Re-Connect to Frontage Road	Where private driveways connect directly to mainline, eliminate private driveways and re-connect to newly installed frontage or reverse road.	Between 20 th and 23 rd Street	KDOT FORT SCOTT
Intersection Consolidation	Consolidate redundant, at-grade local road intersections into single intersection by establishing local road network to facilitate connection to single remaining at-grade intersection.	Not recommended	KDOT FORT SCOTT
Interchanges at Major Roads	Replace major road at-grade intersections with grade-separated interchanges	Not recommended	KDOT
Advance ROW Acquisition	Identify and prioritize critical parcels most vulnerable to development or other market forces.	Realigned 18 th Street US 69 from South National Ave. to 23 rd Street Multiple locations on recommended Local Street Network	KDOT FORT SCOTT
Intersection Upgrades	Monitor traffic volumes and accident rates to determine when intersection improvements are needed.	SB Wall Street On-ramp 3 rd Street 6 th Street 12 th Street 18 th Street 23 rd Street	KDOT FORT SCOTT

US 69 ACCESS MANAGEMENT RECOMMENDATIONS

Access management along the corridor is often combined with traffic operational improvements and controls. This section identifies problems found along the corridor that can be addressed by improved access management to improve safety and smooth traffic flow. **Table 8.2** provides a summary of access management tools applicable to projects within the corridor.

US 54 To South National Avenue

The primary focus of this segment, with its already managed access, is to reduce the differential in speeds and improve traffic circulation. Turbulence in the traffic flow is caused by some drivers driving excessively fast and failing to anticipate signalized intersections along this segment of highway. Intelligent Transportation Systems (ITS) that improve advance warning of the traffic signals and interconnected communication between each signal should be employed to maintain good signal progression and improve driver awareness and expectations. These improvements will reduce the need for through trucks to stop and slowly accelerate in traffic.

South National Avenue To Jayhawk Road

Access management policy along this segment should minimize the construction of new driveways, and consolidate and eliminate existing driveways, applying KDOT guidelines. **Figure 8.3** illustrates a concept based on access management and enhanced development of vacant or underused properties in this area. The highway here would also be widened from north of 23rd Street to the

planned 18th Street intersection, providing a center left turn lane similar to US 69 from 23rd Street to Jayhawk Road.

A raised median with a separate left turn lane could be used in place of the center turn lane to provide better access management. Right turn lanes should also be added at the signalized intersections and other major movements to maintain the platoon of through vehicles within this section US 69. The southern section of this area, from 23rd Street to Jayhawk Road displays effective access management techniques that should be used as other sections of US 69 are redeveloped.

Jayhawk Road To Crawford County Line

Access management policy here should control the number and location of access points when development occurs south of Jayhawk Road, consistent with the land use principles established in Chapter Five. The current spacing of access points and median breaks at approximately ¼ mile and ½ mile points north and south of K-7 respectively should be maintained. Right turn lanes should also be added at those locations where major movements are anticipated, to minimize interference with through vehicles. KDOT is currently studying this rural section of US 69 to determine if an expressway or freeway section should be constructed.

TRAVEL SPEED AND ACCESS DENSITY

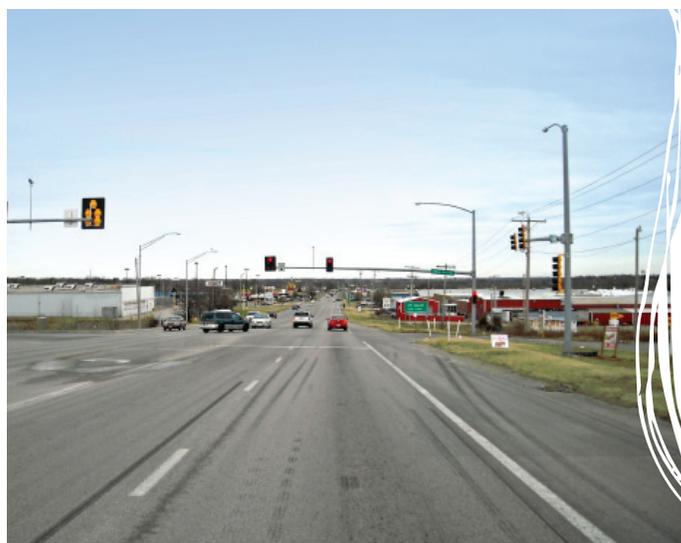
The **Highway Capacity Manual** (HCM) indicates that the free-flow speed on an undivided multi-lane highway is about 1.6 mph less than a divided highway (similar to the proposed 5-lane section between 23rd Street and 18th Street/

South National Avenue). The HCM also indicates that for every 10 access points per mile, the free flow speed on the highway will decrease by 2.5 mph.

The 0.42 mile segment of US 69 between 23rd Street and 18th Street/South National Avenue currently has ten access points for northbound traffic, and 16 access points for southbound traffic. This equates to 24 access points/mile northbound, corresponding to a decrease of 6.0 mph, and 38 access points/mile southbound, or a decrease of 9.5 mph.

The proposed Access Management Plan for this segment of US 69, as shown in **Figure 8.3**, recommends elimination and consolidation of driveways, resulting in seven northbound and nine southbound access points in this segment. This corresponds to 17 access points/mile northbound (a decrease of 4.3 mph), and 21 access points/mile southbound (a decrease of 5.3 mph). The widening of US 69 to provide a five-lane section in this area will result in additional travel time improvements. With the reduced number of access points and widening to a five-lane section, average travel speeds would be increased by 3.3 mph in the northbound direction and 5.8 mph in the southbound direction.

The effect of access spacing and land configuration on the segment from 23rd Street to 18th Street/South National Avenue is summarized in **Table 8.3**. This improvement in travel speeds and operations will tend to make regional travelers more tolerant of the local character of US 69 through this segment of the highway, which generates substantial sales revenues and economic activity for the city and county.



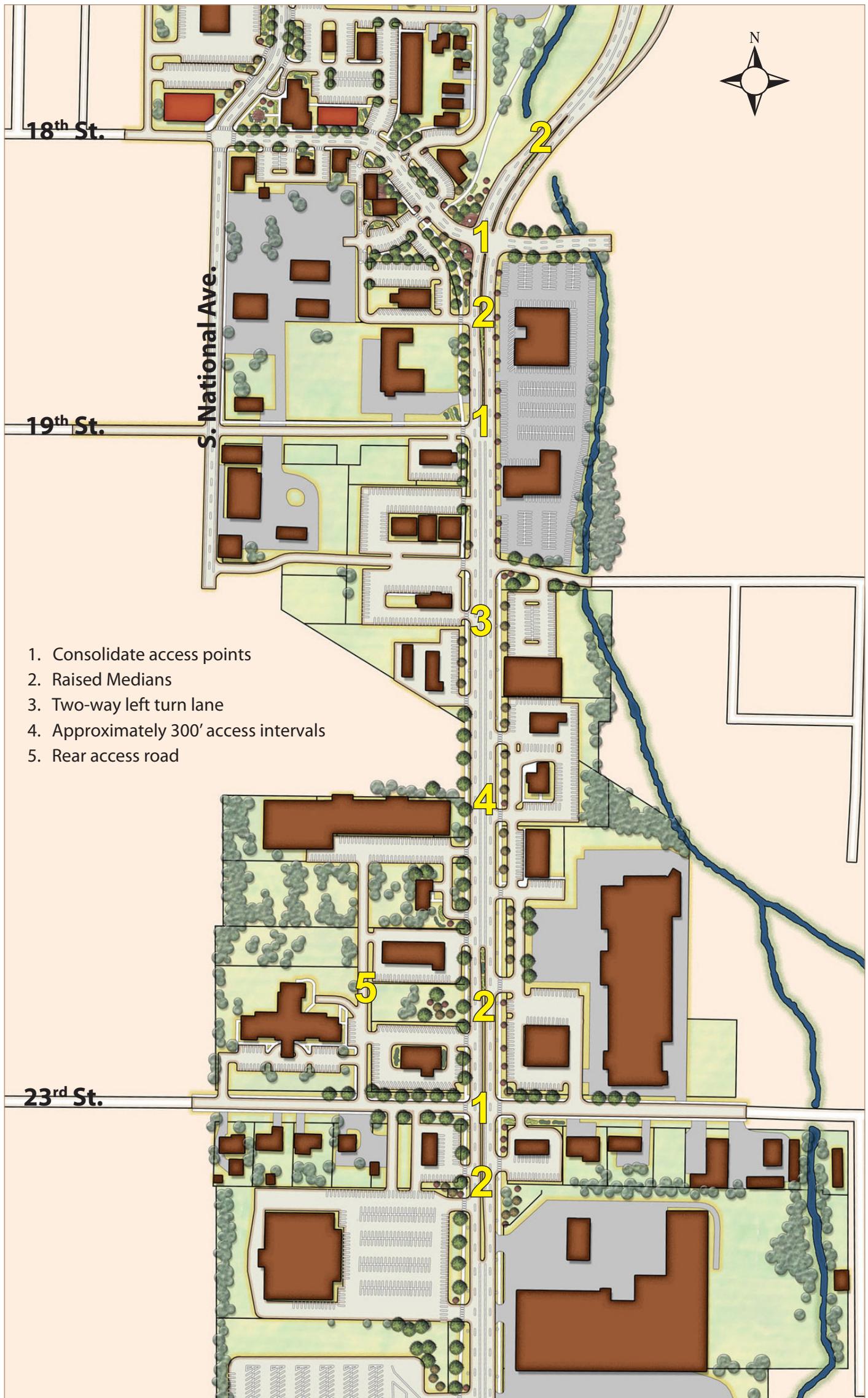


Figure 8.3 Commercial Corridor Access Modifications

Table 8.3 Speed Effect of Access Spacing – 23rd St to 18th St /South National Ave

Year	2009 Existing		2040 Background		2040 Total	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
Cross Section	4-lane	4-lane	4-lane	4-lane	5-lane	5-lane
Speed Decrease (mph)	1.6	1.6	1.6	1.6	0.0	0.0
Access points / mile	24	38	24	38	17	21
Speed Decrease (mph)	6.0	9.5	6.0	9.5	4.3	5.3
Total Speed Decrease (mph)	7.6	11.1	7.6	11.1	4.3	5.3
Free Flow Speed (mph)*	22.4	18.9	22.4	18.9	25.7	24.7

* Free Flow Speed based upon 30 mph baseline speed

ENHANCEMENTS TO LOCAL STREET NETWORK

The local street network proposed in this Corridor Management Plan is also critical to providing safe and efficient traffic flow along US 69 through Fort Scott. The land use and development concepts presented in Chapter 5 and 6 require an integrated street network that both provides functional highway access and establishes complementary routes for local traffic. These new and extended local streets strengthen north-south mobility by all modes and reduce

the use of the main line by local traffic bound for major retailing, the hospital, the community college, and industrial employment centers.

Figure 8.4 illustrates a potential local street network for the study area between East National Avenue and Jayhawk Road. Key components are:

- Extension of South National Avenue to 23rd Street.
- Extension of 20th Street to Horton Street.
- Redesign of the street system in the south national business district

and extension of 18th Street east of US 69 as a “rearage” facility serving existing and new development between the highway and the BNSF.

- A 23rd Street overpass over the railroad.
- Improved bicycle and pedestrian access south of 12th Street.

This concept will inevitably be modified to support actual developments as they emerge. However, it demonstrates a general program for local access and should remain a top priority for transportation system improvements.

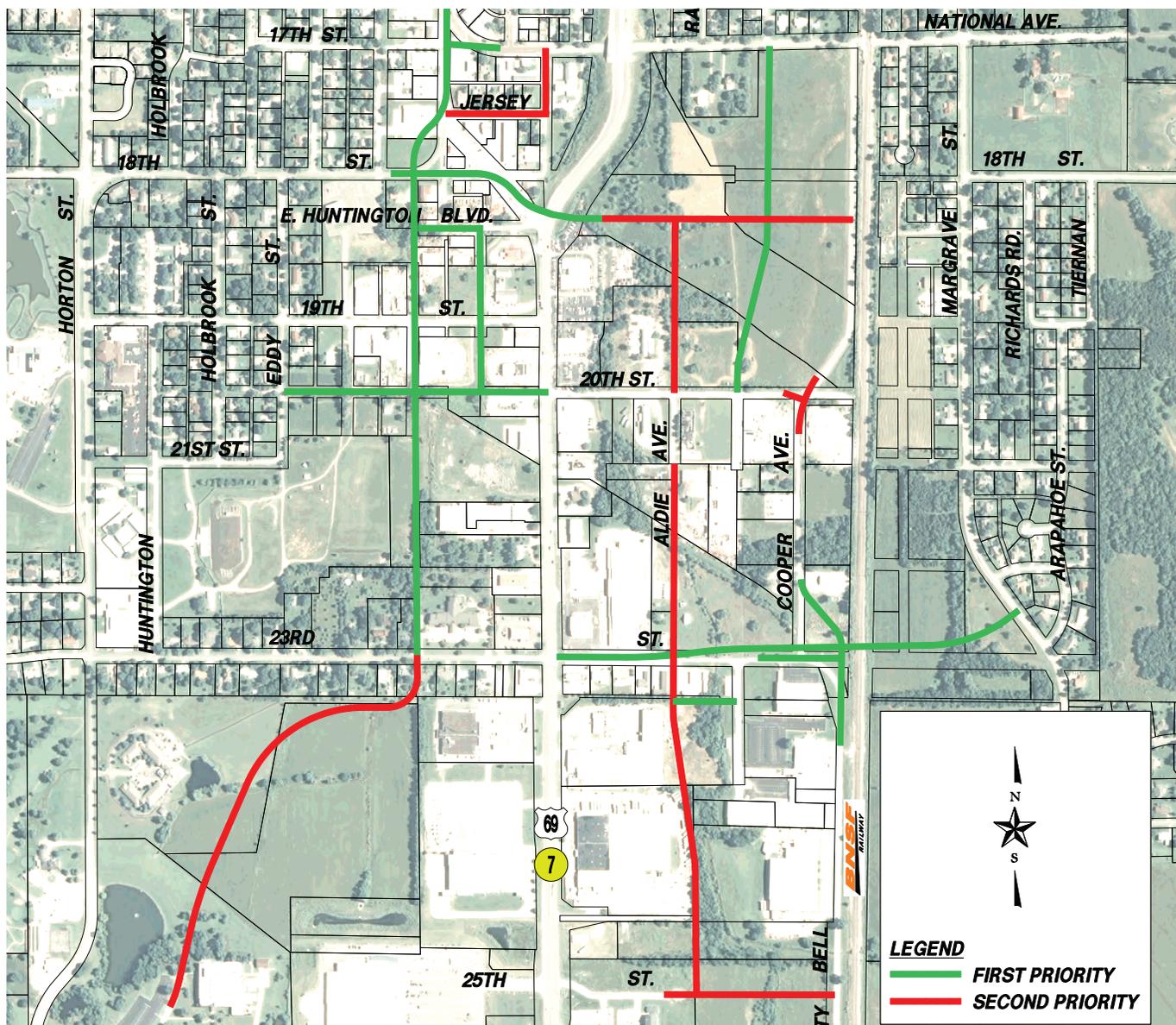
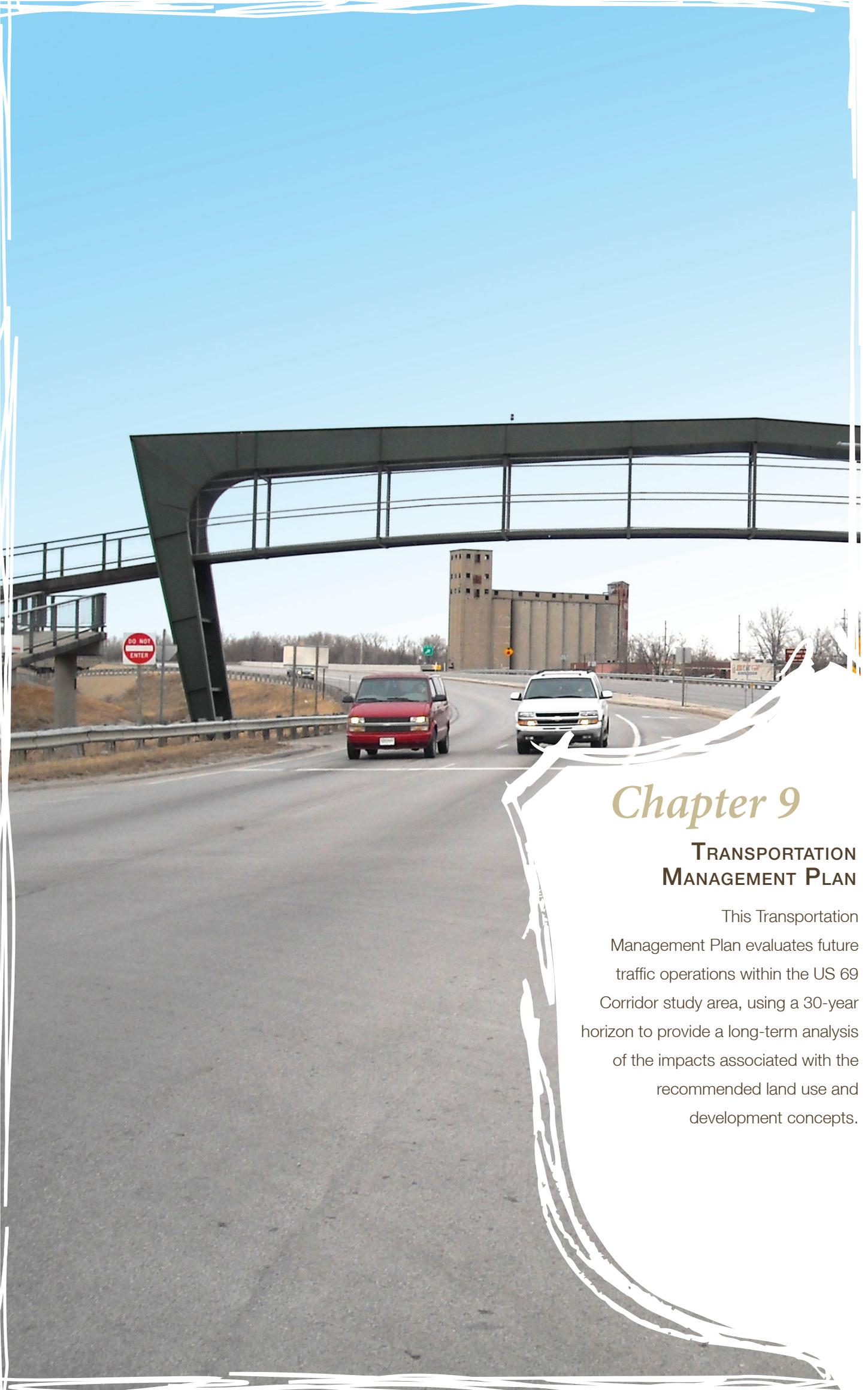


Figure 8.4 Local Street Network Improvements (off-system)





Chapter 9

TRANSPORTATION MANAGEMENT PLAN

This Transportation Management Plan evaluates future traffic operations within the US 69 Corridor study area, using a 30-year horizon to provide a long-term analysis of the impacts associated with the recommended land use and development concepts.

INTRODUCTION



This Transportation Management Plan evaluates future traffic operations within the US 69 Corridor study area, using a 30-year horizon to provide a long-term analysis of the impacts associated with the recommended land use and development concepts presented in Chapters Five and Six. This chapter describes traffic operations for two transportation development scenarios within the US 69 study area: the 2040 No-Build and the 2040 Ultimate scenarios.

The 2040 No-Build scenario presents the projected 2040 traffic volumes based

on expected regional and local growth and development patterns. It depicts anticipated traffic operations if growth occurs in the US 69 corridor study area following historic rates, and Fort Scott continues to develop with the existing transportation system (including a two-lane US 69 from K-7 to the Crawford County Line) in place without change. The 2040 No-Build scenario traffic operations analysis together with Chapter Four's safety analysis were used to identify a number of transportation system improvements both along US 69 and off-system. The 2040 Ultimate scenario evaluates future traffic operations assuming implementation of these transportation system improvements and the access management plan described in Chapter 8. The 2040 Ultimate scenario assumes development projected by the future land use plan presented in Chapter 5 and continued regional growth at historic rates along US 69.

For comparison purposes, the 2009 Existing scenario summarizes information previously covered in Chapter 4. Its inclusion in this section helps compare current system operations to these two future scenarios.

TRANSPORTATION SYSTEM IMPROVEMENTS

The analysis of traffic operations and crash history along the US 69 corridor and the performance of the 2040 No-Build scenario generated an array of recommended transportation system improvements. These improvements, described in this section, have been incorporated into the 2040 Ultimate scenario and group into the following categories:

- US Highway 69 Widening
- Traffic Signal Communication
- Dilemma Zone Improvements
- Advanced Warning Signs and Beacons
- Intersection Improvements
- Off System Improvements
- Pedestrian and Bicycle Improvements

It should be noted that all of the recommended improvements discussed in this chapter will incorporate best management practices for storm water management and address floodplain impacts as necessary, particularly on the the north end of the corridor.



US 69, looking north toward 6th Street Intersection.



US 69 - Two Lane Section south of Fort Scott between K-7 and Arma, Kansas

US Highway 69 Widening

Two roadway widening projects have been identified along US Highway 69 within the study area to improve traffic operations: the rural section of US 69 from Arma to K-7, and the urban section of US 69 from 23rd Street to 18th Street/South National Avenue.

Arma to K-7 Interchange

US 69, between the I-44 interchange in Oklahoma to the north side of Arma (along with the proposed Pittsburg Bypass), will ultimately be a four-lane freeway, providing a high speed, limited access facility that improves regional freight movements and vehicular traffic operations along the corridor. The US 69 section from Arma to K-7 was originally planned as an expressway, allowing at-grade intersections and a limited number of driveways with direct access to the highway. KDOT is currently studying this section to determine whether the most appropriate design solution is the current expressway concept, an expressway upgradable to freeway standards, or a freeway with limited access.

23rd Street to 18th Street / South National Avenue

Within the urban area of Fort Scott, US 69 narrows to a four-lane undivided section from north of 23rd Street through the intersection with 18th Street/South National Avenue. This portion of the highway should be reconstructed to a 5-lane section with a center two-way left-turn lane. In addition to the widening, this project should consolidate access points, to provide greatest feasible consistency with a 300-foot access spacing standard.

Traffic Signal Communication/Coordination

Currently, the five traffic signals along US 69 through the Fort Scott area lack a communication and coordination system. As a result, each signal operates independently, producing inefficient stop and go operations for through traffic. This is a particularly important issue because of the growing amount of heavy truck traffic on the highway. Better signal timing coordination will reduce the negative impact of trucks stopping at several intersections through the city.

A hard-wired communication system should be installed to allow for future signal coordination and timing plans to improve traffic progression. The installation process must be coordinated with KDOT traffic engineering and Intelligent Transportation System (ITS) divisions. An adaptive traffic signal control system, in conjunction with the signal communication system, presents another option for improved operations along US 69.

Dilemma Zone Improvements

The “dilemma zone” factor is another major contributor to crashes at some of Fort Scott’s signalized intersections. Dilemma zones (illustrated in Figure 9.1) are the areas on approach to intersections through which a vehicle can neither proceed before the traffic signal turns red nor stop safely. Dilemma zones occur when intersection approach speeds exceed 45 mph and when the signal is isolated or unexpected. Intersections with these conditions often have a crash history of frequent rear-end, signal violation, or right-angle crashes.



US 69 - 23rd Street to 18th Street / South National Avenue

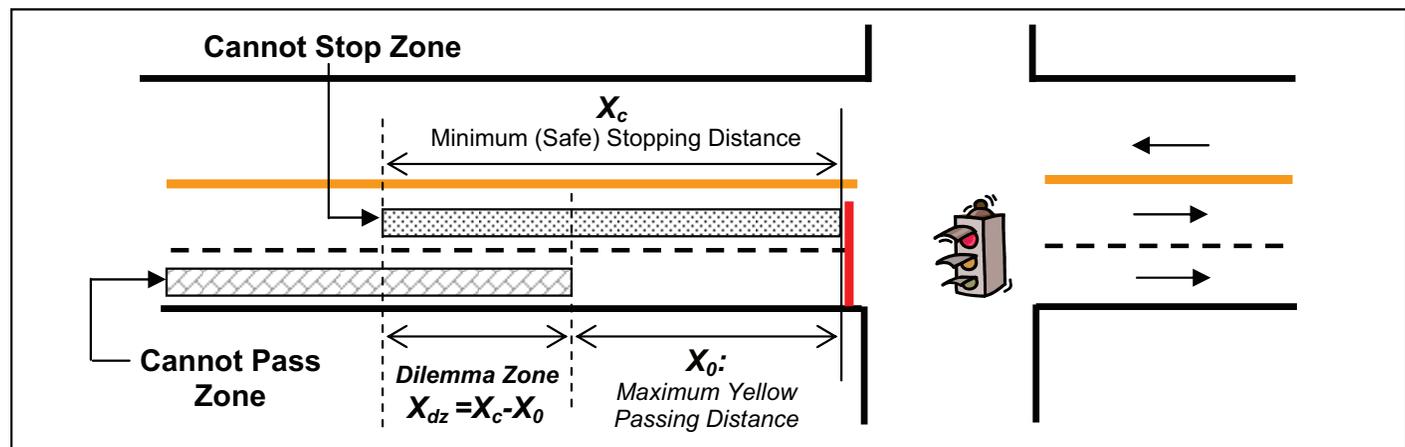


Figure 9.1 Formation of Dilemma Zone

Signal violations at dilemma zones can be corrected with advance warning signs with the message “Prepare to Stop” (W3-3 and/or W3-7) combined with flashing beacons that are interconnected with the traffic signal. In Fort Scott, a dilemma zone protection system is currently installed on US 69 at the northbound approach to the intersection with 25th Street. A similar system should be installed on US 69 at the southbound approach to 3rd Street.

Advance Warning Signs and Beacons

Typically, KDOT installs an advance warning system at locations where there may be limited sight distance. In Fort Scott, some form of advance warning now exists in at least one direction of travel on US 69 at 3rd Street, 6th Street, and 12th Street. At these intersections the location of signs on each approach was checked to determine if adequate warning is provided for the posted speed. The advance warning sign and beacon systems should be upgraded at the signalized intersections on US 69 in Fort Scott per the AASHTO Roadway Design Manual (Green Book). This is discussed in more detail in the following sections for each intersections.

US 69 Intersection Improvements

3rd Street Intersection

The first traffic signal that southbound travelers on US 69 encounter south of I-435 in Overland Park is 3rd Street in Fort Scott, 78 miles away. Not surprisingly, crash record narratives indicate that many drivers did not expect to encounter this signal. The posted speed limit on US 69 is 50 mph at 3rd Street, and typical traffic speeds approaching this intersection exceed 45 mph. Third Street has the highest crash rate of any intersection along US 69 in the study area, and a majority of collisions involve southbound vehicles in either rear-end crashes or signal violations. Several improvements can improve safety here:

- For southbound traffic, the dilemma zone protection system described previously should be installed to replace the existing advance warning signs.
- Advance warning signs (w3-3) and beacons should be installed per AASHTO guidelines on the northbound approach to 3rd Street. The existing sign and beacon are too close to the intersection to reduce roadway speed.
- The southbound US 69 entrance ramp from Wall Street should be extended through the 3rd Street as an auxiliary lane to provide additional length for merging. The merge length for the US 69 entrance ramp is substandard for the posted speed of 50 mph. Per the AASHTO **Roadway Design Manual** (Green Book), the recommended taper rate for the ramp to merge into through traffic lanes is 600 feet. The existing taper length is only 180 feet, and the distance to the 3rd Street stop bar is just 300 feet from the ramp’s merge with US 69. As a result, there is inadequate room for southbound vehicles to merge onto US 69 before encountering the signalized intersection at 3rd Street. A detailed engineering study should be conducted to fully evaluate the potential impacts of extending the on-ramp lane through the intersection.
- Construction of an exclusive northbound right-turn lane should be considered to separate slow moving local traffic from the through traffic mix. Current traffic volumes (94 vph in the PM peak hour) are not high enough to warrant an exclusive right-turn lane based solely on volumes. However, traffic volumes



Dilemma Zone Protection System near 25th Street looking north on US 69.



Existing Warning Sign and Beacon at 3rd Street.

and operations at the intersection should be monitored to determine if they eventually warrant an exclusive right-turn lane.

6th Street Intersection

A number of the crashes at this intersection also involved southbound vehicles. Due to the curvature of the roadway on the approaches to the intersection, advance warning signs and beacons should be installed per AASHTO guidelines for both the northbound and southbound approaches to this location. Although “signal ahead” signs and flashing beacons are already provided, they may be too close to the intersection to be effective, given the speed and roadway alignment.

Northbound and southbound right turn lanes should also be considered at 6th Street to remove slow moving local traffic from the through traffic mix. Current traffic volumes (31 and 47 vph in the PM peak hour northbound and southbound, respectively) are not high enough to warrant exclusive right-turn lanes based solely on traffic movements. However, traffic volumes and operations at the intersection should be monitored to determine if they eventually warrant exclusive right-turn lanes.

12th Street Intersection

Due to the limited sight distance and curvature of the highway on both approaches to the intersection of US 69 with 12th Street, “signal ahead” signs followed by “Be Prepared to Stop” signs are currently provided. To improve advanced warning, a study should be conducted to determine if signs and beacons similar to those recommended at 6th should be installed on both approaches to replace the existing signs.

Northbound and southbound right turn lanes should also be considered at 12th Street to remove slow moving local traffic from the through traffic mix. Current traffic volumes (85 and 30 vph in the PM peak hour northbound and southbound, respectively) do not warrant exclusive right-turn lane based solely on volumes. However, traffic volumes and operations at the intersection should be monitored to determine if they eventually warrant exclusive right-turn lanes.

18th Street / South National Avenue Intersection

Most of the collisions at US 69/South National Avenue intersection involved vehicles traveling southeast on South

National Avenue or northbound on US 69, in turning maneuvers, rear end, or right angle crash types. A review of MUTCD traffic signal warrants determined that existing traffic volumes warranted signalization. The recommended improvement program for this intersection includes:

- Reconstructing the intersection to provide an exclusive northbound left-turn lane on US 69, an exclusive right-turn lane for southeast bound South National Avenue, and a traffic signal. A raised median on the highway approaches to the intersection would also limit full movement access to driveways adjacent to the intersection (Figure 9.2). The traffic signal should provide a separate left turn (green arrow) phase for northbound traffic with an overlapping right turn arrow for southeast bound vehicles on South National Avenue.
- Designing the new 18th Street alignment shown in the proposed

South National District Plan as a 3-lane section on the west leg of the intersection. Eighteenth Street should eventually be extended east of the highway to provide access to undeveloped properties between US 69 and the BNSF tracks and connect with the future street network previously described.

- Consider installing advanced warning signs and beacons for southbound traffic because of limited sight distance and highway curvature between 12th and 18th Streets. Traffic conditions after signalization should be monitored to determine the need for dilemma zone protection.

19th Street / 20th Street Intersection

Most collisions in the vicinity of 19th Street and 20th Street involved turning maneuvers or side swipes, probably caused by close spacing of driveways and streets and the lack of a center turn lane.

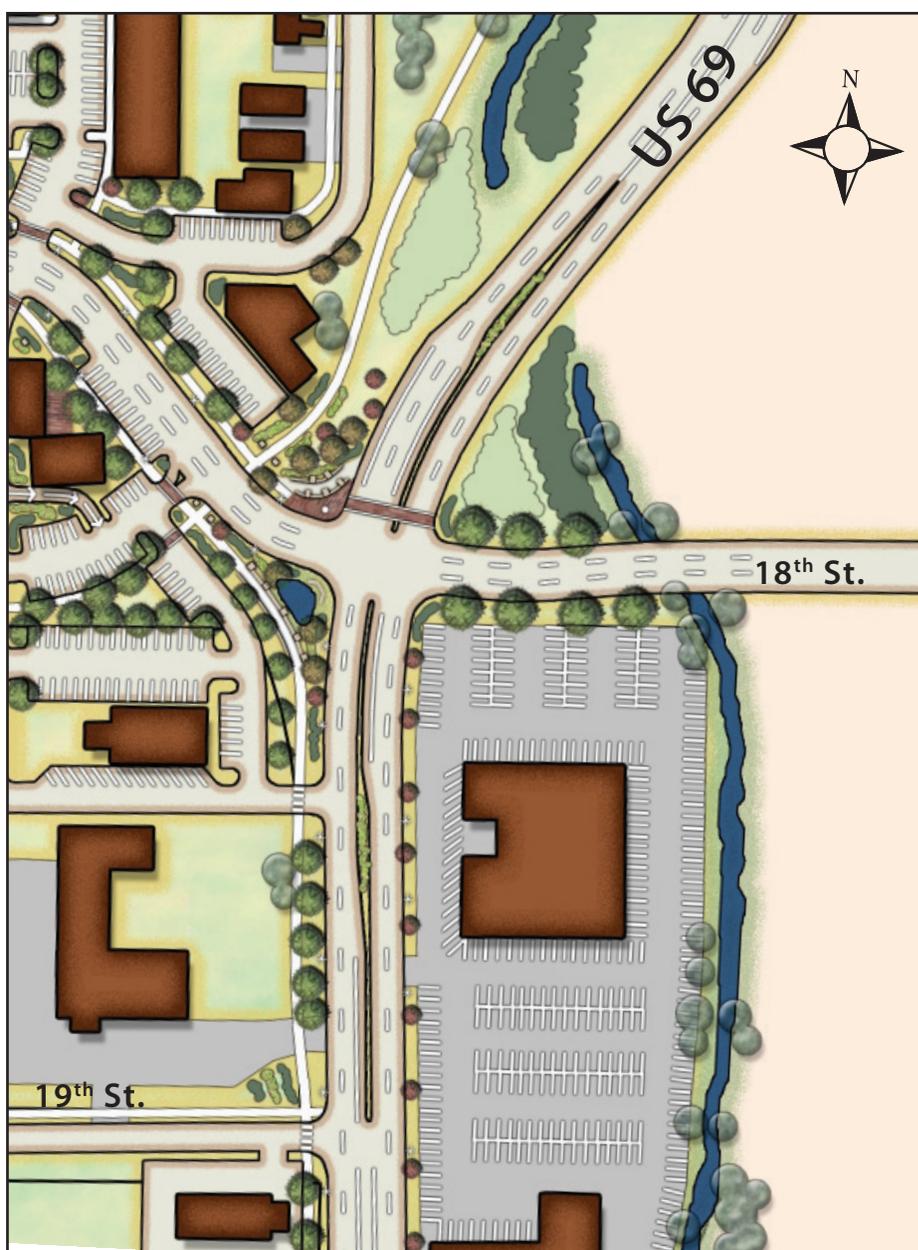


Figure 9.2 Recommended Configuration at Intersection of 18th Street/National Avenue and US 69

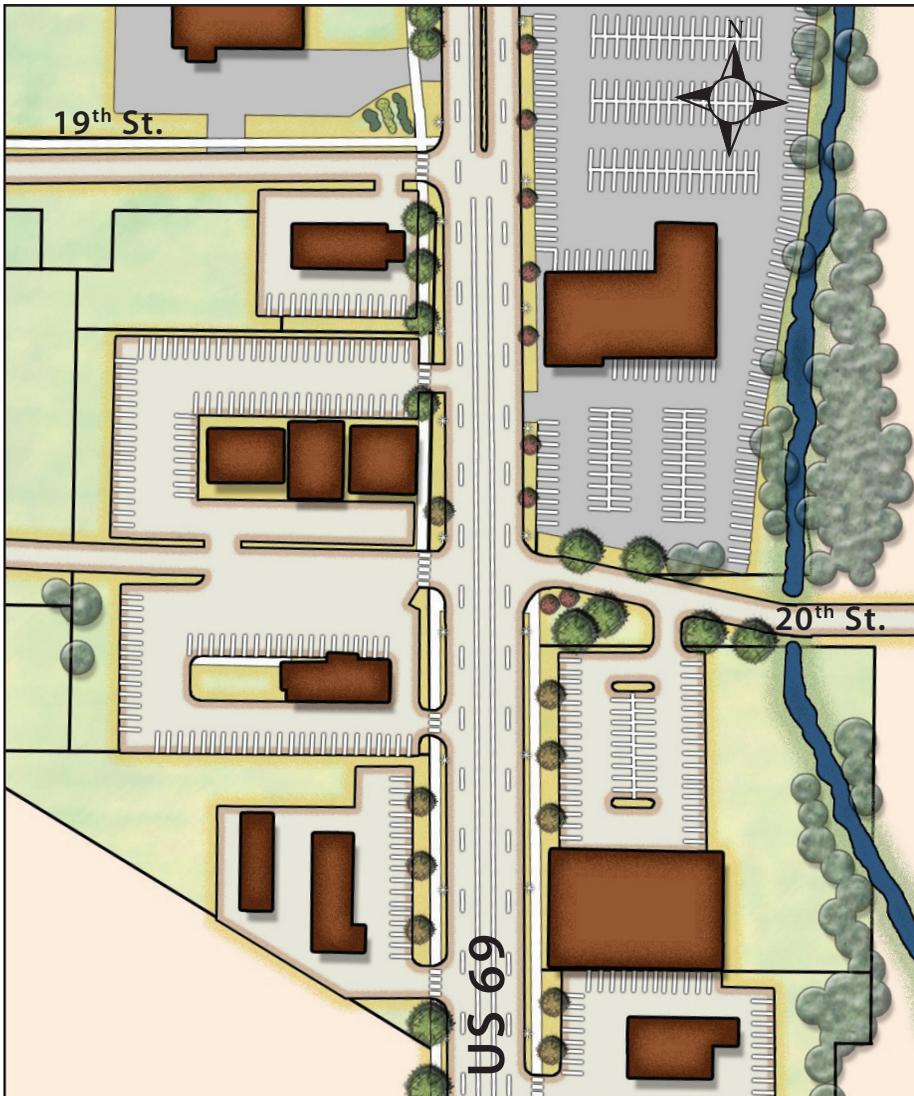


Figure 9.3 Recommended Configuration at 19th and 20th Streets.

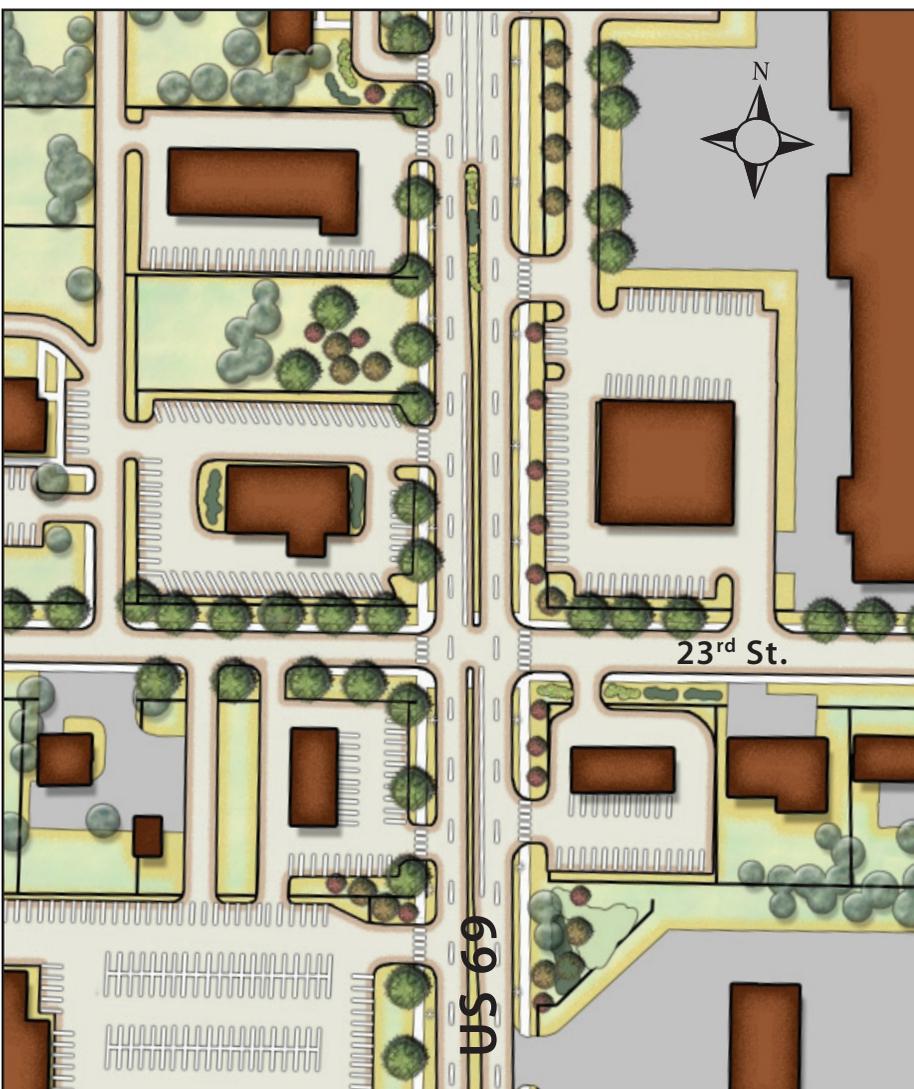


Figure 9.4 Recommended Configuration at 23rd Street

The access management plan proposes consolidating driveways and establishing 20th Street as an area collector (**Figure 9.3**). The 20th Street intersection should be rebuilt slightly north of the current alignment to provide common access to the commercial properties on the west side of US 69. Widening the highway to a five-lane section provides protected left turn movements. Traffic operations should be monitored to determine future signal warrants at the new 20th Street intersection.

23rd Street Intersection

Based on crash experience, an access control program around the 23rd Street intersection (**Figure 9.4**) should consolidate driveways and emphasize 23rd Street as the primary connection to US 69 from adjacent properties. A 300-foot raised median on US 69 north and south of 23rd Street should be built to convert existing private driveways to right-in/right-out operation.

Exclusive left-turn lanes should also be provided on 23rd Street. The Fort Scott Highway/Railroad Crossing Safety Study identified 23rd Street as the most feasible grade separation over the BNSF, and this important project will inevitably increase traffic on 23rd Street, including turning movements. Left-turn lanes can reduce green time needed for 23rd Street, providing additional capacity for US 69 through traffic.

25th Street Intersection

This intersection was recently reconstructed with the Walmart development on the west side of US 69. A new traffic signal was installed, along with dilemma zone protection for the northbound approach to the intersection. No additional improvements are required at this location.

Jayhawk Road Intersection

Forecasts for 2040 do not warrant traffic signalization at this intersection. However, the city and KDOT should monitor traffic operations and crash records to determine if MUTCD traffic signal warrants are satisfied in the future.

Off-System Improvements

Railroad Grade Separation

The 2007 Fort Scott Highway / Railroad Crossing Safety Study evaluated several locations for a new railroad grade separation over the BNSF mainline in Fort Scott (**Figure 9.5**), and recommended

locating an overpass at 23rd Street. The railroad grade separation project also improves the adjoining roadway network to provide system connectivity.

Building a new railroad grade separation gives Fort Scott a new, southern route over the BNSF mainline. This is especially important for emergency vehicles and other vehicles too high to clear the existing 3rd Street underpass. A grade separation also relieves local traffic congestion at the existing 3rd Street underpass when train movements block surface crossings.

Railroad Quiet Zone

The 2007 Fort Scott Highway/Railroad Crossing Safety Study recommended creating a railroad quiet zone on the BNSF mainline in Fort Scott. A quiet zone requires improving several highway-rail grade crossings, including Wall Street, 6th Street, 10th Street, East National Avenue and Jayhawk Road (Figure 9.5). Quiet zones should be implemented in two phases. Phase one includes crossings at Wall Street, 6th Street, 10th Street, and East National Avenue, while phase two includes construction of the 23rd Street viaduct and crossing safety improvements at Jayhawk Road.

Implementing a quiet zone would silence train horns in Fort Scott and would produce major community benefits, including improving property values for homes near the railroad, making strategic development sites near downtown more marketable for hotels and other commercial uses, and improving development prospects west of Margrave. The construction of raised medians on the approaches to each crossing also improves safety by preventing motorists from driving around the gate arms when trains are approaching.

Local Street Network

East Circulation Roads. Chapters 5 and 8 proposed a local street network parallel to and east of US 69, with connections to the existing road system. Connections to and extensions of existing roadways would eventually include East National Avenue, 18th Street, Aldie Avenue, and 20th Street (shown in Figure 8.4). This eastside street network opens land for development between US 69 and the BNSF. In addition, the north/south circulators relieve US 69 by providing alternative routes to commercial destinations in south Fort Scott. Some of the roadway links will be built as land develops in this area.



US 69 south of 25th Street



Jayhawk Road south of US 69

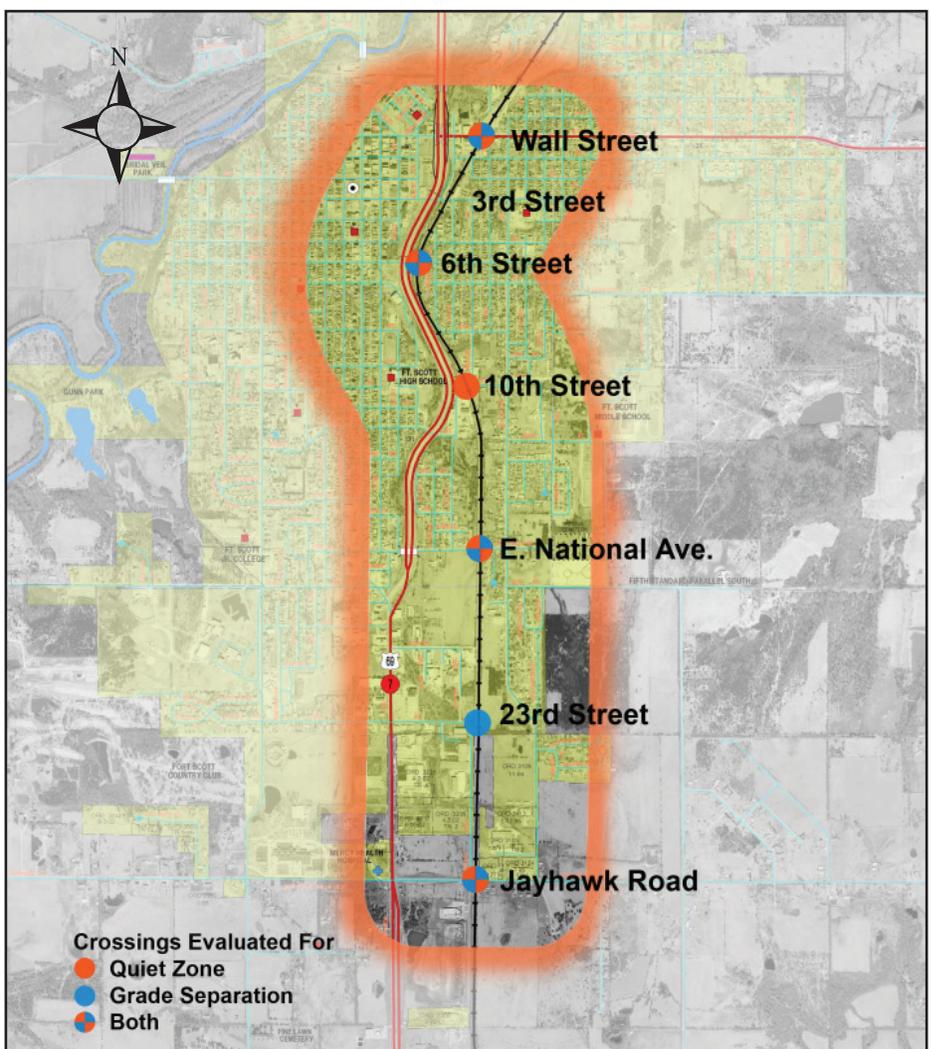


Figure 9.5 2007 Railroad Study Location Map



Northbound Main Street

Table 9.1 Treatments for Streets

Roadway Width or Character	Examples	No Parking	One-Sided Parking	Two-Sided Parking
30 feet	3 rd Street, 12 th Street	5-foot bike lanes, or sharrows 4 feet from pavement edge	Sharrows 11 feet from curb with parking, 4 feet from curb without parking	Sharrows 11 feet from curb.
35-36 feet	East National, Horton north of 18 th Street	5-foot bike lanes both sides	Five foot bike lane on side without parking. Solid white line 7 feet from curb to define parking area Sharrow 11 feet from curb on side with parking.	Solid white lines 7 feet from curb to define parking. Sharrows 11 feet from curb.
38-40 feet	National Avenue, 6 th Street	5-foot bike lanes both sides	Five foot bike lane on both sides, with minimum 7.5-foot distance from curb on side with parking. If clearance is impossible, sharrow 11 feet from curb on side with parking	Solid white lines 7 feet from curb to define parking. Sharrows 11 feet from curb.
48-50 feet	Margrave, 6 th to 18 th ; Wall	6-foot bike lanes; possible restriping as 3-lane section	6-foot bike lanes with minimum 7.5-foot distance from curb on side with parking.	5-foot bike lanes with minimum 7.5-foot distance from curb
Horton Street Boulevard Section	Horton, 18 th to Meadow Lane	6-foot bike lanes	NA	NA

West Circulation Roads. This plan proposes a similar system of roadway extensions and new connections west of US 69 (Also shown in Figure 8.4). The highest priority project would extend South National Avenue, with local connections to 18th, 19th, 20th, and 23rd Streets. The westside circulation network provides local routes to commercial and community destinations

in this area, diverting additional traffic from US 69.

Main Street One-Way Conversion. Main Street’s current northbound one-way operation limits downtown business exposure, prevents visitors to the historic fort property from easily driving downtown, and generally confuses people who are unfamiliar with Fort

Scott. Main Street should return to two-way operation between 3rd Street to Wall Street. With two-way circulation, diagonal parking on one side of the street would convert to parallel parking. Off-street parking improvements and efficiencies, proposed in Chapter Six, more than compensate for reduced on-street parking. Changes to traffic flow would also modify existing signs and striping.

Bicycle And Pedestrian Improvements

Developing the US 69 study area as a complete transportation corridor can help traffic operations in the entire Fort Scott system by diverting unnecessary automobile trips to alternative modes. The city's size and layout is ideal for bicycling or walking for short commutes to work, occasional shopping trips, and travel for education, recreation, and personal health and enjoyment. Measures of success for an alternative transportation network include:

- **Directness.** The system should get people to desired destinations without excessive detours or diversions.
- **Integrity.** The system's components should connect to each other and avoid dead-ends or segments that leave users in disorienting or uncomfortable settings.
- **Safety.** The system should be fundamentally safe and avoid exposing users to hazards.
- **Comfort.** The system should recognize different levels of user ability, and provide routes that are within these capacities.
- **Experience.** The system should offer users attractive and engaging routes showcasing the community.

This section presents recommendations for a bicycle and pedestrian transportation that satisfies these criteria and becomes an integrated part of the city's transportation system.

Bicycle Network

The proposed bicycle network (Figure 9.6) for the planning area proposes five levels of facilities:

Multi-use pathways, typically 10-foot paved trails on right-of-ways separated from roadways. Multi-use pathways define the "Great Circle" concept presented in Chapter Six, and are intended for pedestrians, bicyclists, and in-line skaters. The proposed pathway corridors include:

- *The US 69/Buck Run Greenway*, along the creek and parks and green space paralleling US 69 between the Marmaton River and the redesigned 18th Street/US 69 intersection
- *The Marmaton River Trail*, connecting with the Buck Run Greenway east of US 69, using an abandoned railroad alignment under the highway, and continuing along the river to Gunn Park.
- *A southeast trail*, following drainage patterns between the 18th Street/US 69 intersection and the approach to the proposed 23rd Street overpass.
- *The "Gordon Parks Trail,"* continuing the Great Circle system from 18th Street and Gunn Park Road, through the Fort Scott Community College campus and county fairgrounds to the west side of US 69.

Enhanced sidepaths, typically ten-foot paved pathways adjacent to and usually a part of road right-of-ways. Sidepaths must be carefully designed at intersections of driveways and intersecting streets to prevent crashes between pathway users and turning traffic. Techniques include proper location of crossing points, clear visibility and marking of conflict zones, cautionary signage, and access management. Sidepaths become safer when the number of intersecting streets and drives are reduced. Proposed sidepath corridors include:

- South US 69 (South Main) between the proposed 18th Street intersection and Jayhawk Road. Ultimately, this sidepath could continue south and west to provide a bicycle route to Lake Fort Scott.
- The proposed 23rd Street overpass, between its west approach and Margrave Street.
- 18th Street from Gunn Park Road to the west boundary of the FSCC campus.

Complete Streets, higher order streets with moderate traffic (such as collectors or minor arterials) that provide continuity through the city and access to important destinations. For bicycle transportation, complete streets provide pavement markings and MUTCD "share-the-road" caution signs that define routes and advise motorists of the probable presence of bicyclists. Complete streets should also include fully accessible sidewalks in good repair. Typical pavement markings include bicycle lanes, defined by solid white lines enclosing a bicycle symbol and directional arrow, or sharrows, a new symbol connoting shared use lanes marked by a bicycle symbol and a directional chevron. Sharrows are used when a street section is too narrow to accommodate bicycle lanes.

Complete streets in the proposed Fort Scott system include:

- National Avenue from the Marmaton River Trail to 23rd Street (with proposed extension).
- Horton Street from 6th Street to the Mercy Hospital west entrance.
- Margrave Street from 3rd Street to 23rd Street.
- Wall Street from National Avenue to Margrave Street.



Bicycle lanes with Sharrow



Possible bicycle lanes along South National Avenue.

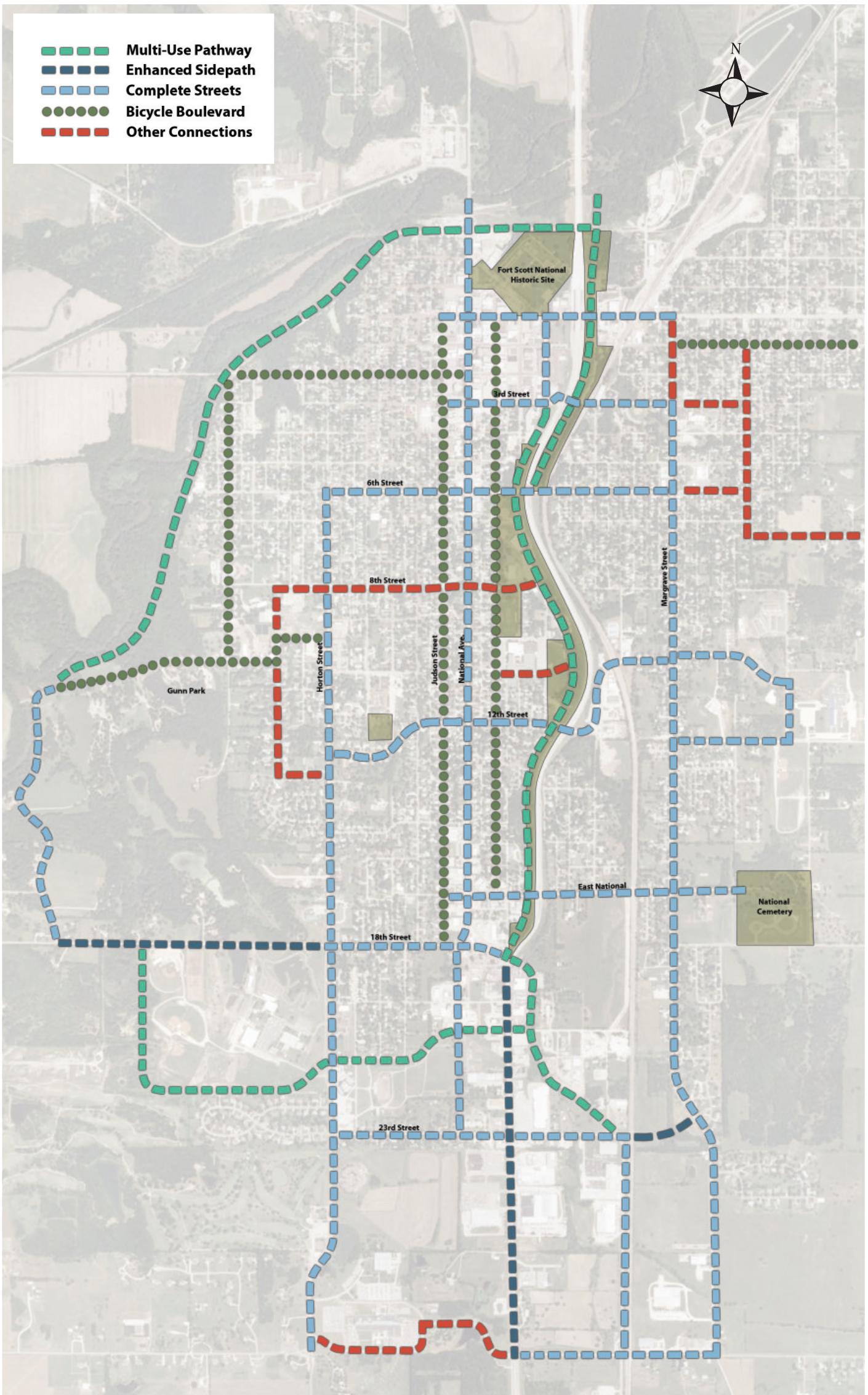


Figure 9.6 Proposed Trails network

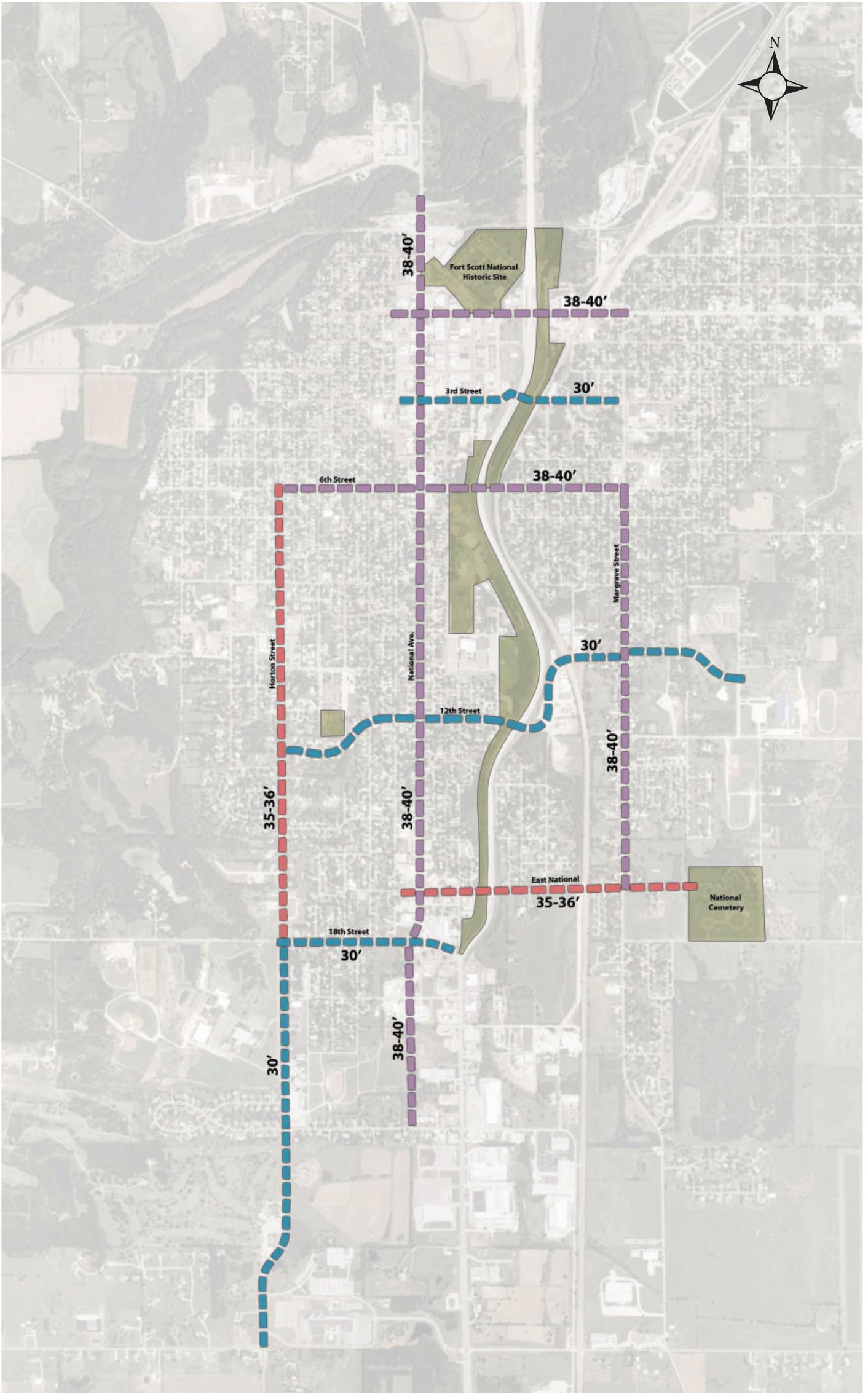


Figure 9.7 Complete Streets Treatments (see also Table 9.1)

- 3rd Street from Judson Street to Margrave Street.
- 6th Street from Horton Street to Margrave Street.
- Sunset and 12th Streets from Horton Street to Fort Scott Middle School.
- East National Avenue from South National Avenue to the National Cemetery.
- 18th Street from the FSCC campus west boundary to the US 69 side-path and proposed Southeast Trail.
- 23rd Street from Horton Street to the proposed overpass.
- Gunn Park Road from Gunn Park to 18th Street.

Pavement marking concepts depend on the width and on-street parking conditions of specific street segments. **Table 9.1** presents alternatives for different contexts, which are illustrated in **Figure 9.7**.

Bicycle Boulevards, local streets that parallel higher order streets with good system continuity. Because bicycle boulevards carry fewer motor vehicles, they are comfortable for a wider range of users than complete streets. Like complete streets, bicycle boulevards should also include fully accessible sidewalks in good repair. Typical policies for developing bicycle boulevards include special sign designations, removal of hazards such as sewer grates with longitudinal openings, and traffic control preferences or four-way stops at crossings with otherwise higher-order streets. Bicycle boulevards in the proposed system include:

- Judson Street from Wall Street to 18th Street.
- Main Street from Wall Street to East National Avenue.
- East 1st Street from Margrave Street to Brown Street.
- 2nd Street from Main Street to Heyman Street.

- Heyman Street from 2nd Street to Park Avenue.
- Park Avenue to Gunn Park.

Local streets, low volume streets providing access largely to residential areas, make up the balance of the system. No special modifications are needed to adapt them to bicycle traffic.

Pedestrian Facilities

Pedestrian transportation needs are largely met by elements of the bicycle network. For example, multi-use trails and sidepaths provide both pedestrian and bicycle access. Complete streets and bicycle boulevards must also provide continuous, barrier-free pathways (usually by sidewalks) on at least one side of the street. These pathways together provide the city’s basic transportation network, and new segments, repairs, and improvements should be publicly financed rather than specially assessed.

However, other actions and policies are specific to pedestrians and are needed to provide basic access throughout the city. These include:

- Redesigning the South National business district, as discussed in Chapter Six. By managing driveways, establishing curb lines, and realigning streets, this important service area can become a friendly and pleasant place for pedestrians. Each new street or alignment should include sidewalks, separated from the back of curb by a tree lawn.
- Incorporating sidewalks or another parallel pathway into all major street projects, including the 23rd Street overpass.
- Establishing design guidelines that require safe and comfortable pedestrian routes from public sidewalks and pathways to the entrances of major commercial or civic projects, and initiating an incentive program to encourage retrofits of existing projects. Pedestrian access does not stop at street right-

of-way lines, and people on foot should not battle with cars to reach the front door of major retailers or other destinations. Pedestrian access improvements may be incorporated into access management projects that consolidate driveway approaches.

- Actively participating in Safe Routes to Schools programs and encouraging initiatives, such as “walking school buses” that encourage children to walk to school.
- Instituting local area access and pedestrian audits to find and repair obstacles to secure pedestrian transportation.
- Providing standards at crosswalks that promote visibility and motorists’ recognition of pedestrians.

FUTURE TRAFFIC OPERATIONS

An analysis of traffic operations for the 2040 No-Build and the 2040 Ultimate scenarios determines whether the transportation system operates at acceptable levels of service for either condition. A comparison of the anticipated traffic operations for each scenario follows, evaluating highway mainline segments, interchanges and signalized intersections.

US 69 Mainline Analyses

The mainline analysis uses the Highway Capacity Software (HCS), based on traffic forecasts developed in Chapter 7. This analysis was limited to the rural sections of US 69, between the US 54 interchange and Wall Street on the north, and between the Bourbon/Crawford County line and Jayhawk Road on the south.

Using existing geometrics, all of the US 69 mainline segments in the study area should meet the operational goal of LOS C or better in 2040, as shown in **Table 9.2**. The segment between the

Table 9.2 US 69 Mainline Operations Analysis - PM Peak Hours LOS

Segment of US 69	2009 Existing	2040 No-Build	2040 Ultimate
County Line to K-7	C*	C*	A
K-7 to Jayhawk Rd.	A	A	A
Wall St. to US 54	A	A	A

* Assumes existing 2-lane highway

Bourbon/Crawford County Line and K-7 is expected to operate at LOS C in 2040 if it remains a two-lane highway. With improvement a four-lane divided cross section, traffic operations should attain LOS A.

On the existing four-lane divided segment between K-7 and Jayhawk Road, the highway is expected to operate at LOS A for all traffic scenarios. The four-lane divided mainline segment between Wall Street and US 54 is also expected to operate at LOS A for all traffic scenarios.

Interchange Analyses

Wall Street (US 54 Interchange)

At the Wall Street interchange, US 69 is expected to remain a four-lane cross-section through 2040. The existing geometrics are also maintained at the interchange, with single-lane ramps in all four quadrants. As shown in **Table 9.3** the southbound merge and diverge movements are both expected to operate at LOS A in 2040 for the PM peak hour. The northbound merge and diverge movements are also both expected to operate at LOS A in the PM peak hour.

US 54 Interchange

At the northern US 54 interchange, US 69 has recently been improved to a four-lane cross-section. All merge and diverge movements are expected to operate at LOS A in the PM peak hour for the Year 2040.

Signalized Intersection Analyses

Figure A.8 in **Appendix A** shows the lane geometry, traffic control, and levels of service for 2040 No-Build traffic conditions. The lane configurations at all study intersections are based on existing geometrics. All study intersections

are expected to operate at acceptable levels of service in the PM peak hour. All signalized intersections should operate at LOS B or better, and the critical movements at the unsignalized intersections should operate at LOS C or better. **Appendix C** presents capacity analysis worksheets for the 2040 No-Build traffic conditions scenario.

Figure A.9 in **Appendix A** shows the lane geometry, traffic control, and levels of service for 2040 Ultimate traffic conditions. The lane configurations at all study intersections are based on improvements proposed in the overall plan. All study intersections are expected to operate at acceptable levels of service in the PM peak hour. All of the signalized intersections 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 2040 ultimate traffic conditions scenario are included in the **Technical Appendix**.

SUMMARY

A number of transportation system improvements along US 69, as well as off-system improvements, have been identified as part of this Transportation Management Plan. These transportation system improvements should work in conjunction with and often are integrated into the land use plan described in Chapter 5 and the access management plan recommendations described in Chapter 8.

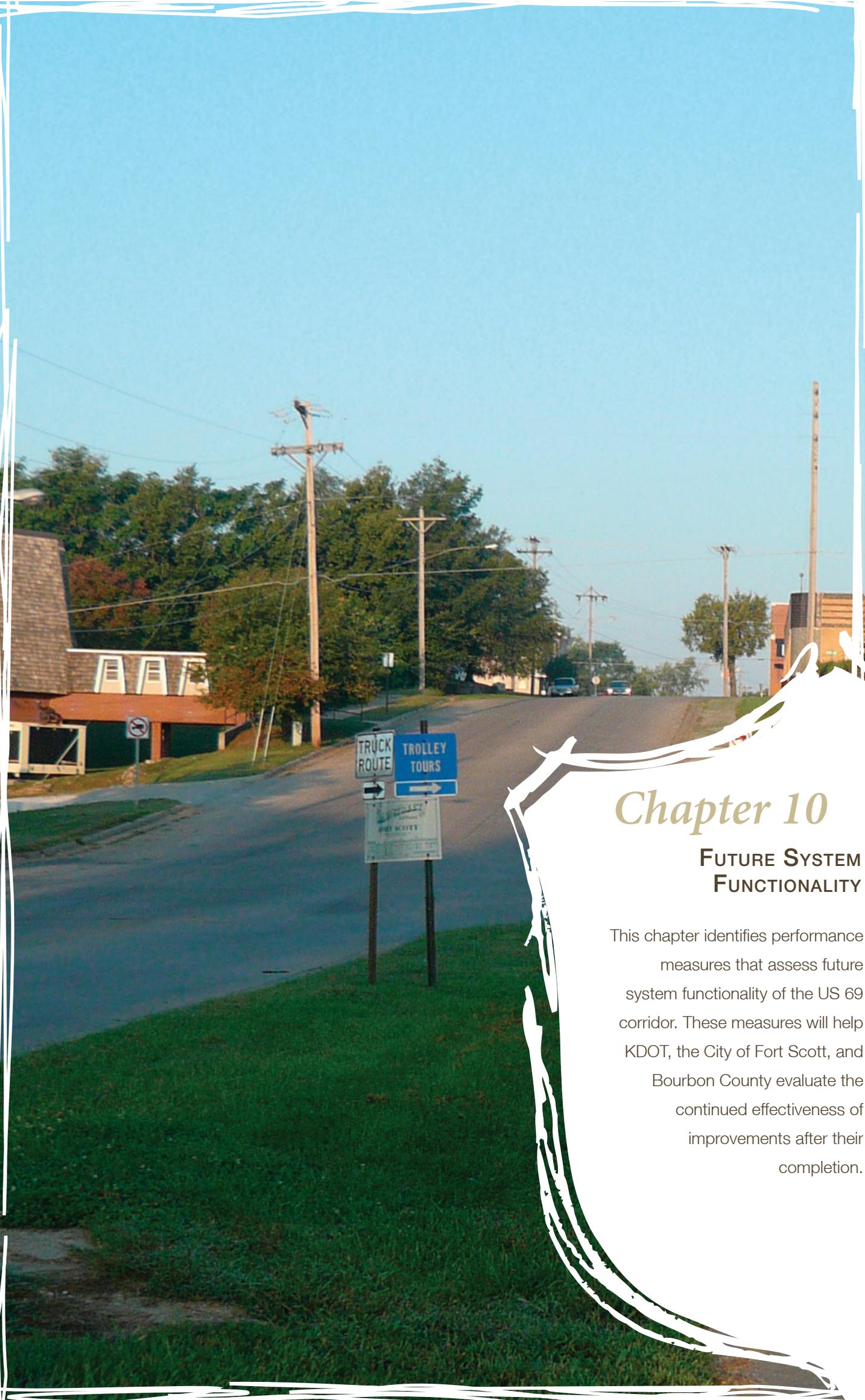
Chapter 10 identifies a number of performance measures to evaluate the future system functionality of the US 69 corridor. These measures will provide a framework for KDOT, the City of Fort Scott, and Bourbon County to determine the effectiveness of this corridor improvement program once it is in place. Chapter 11 presents an im-

plementation plan to guide decision-makers and elected officials through the process of building a better US 69 corridor. This plan proposes guidelines for setting priorities, and phasing and funding the elements of this multi-faceted Corridor Management Plan.

Table 9.3 US 69 Interchange Operations Analysis - PM Peak Hours LOS

Interchange	Movement	2009 Existing	2040 No-Build	2040 Ultimate
Wall Street	NB diverge	A	A	A
	NB merge	A	A	A
	SB diverge	A	A	A
	SB merge	A	A	A
US 54	NB diverge	A	A	A
	NB merge	A	A	A
	SB diverge	A	A	A
	SB merge	A	A	A





Chapter 10

FUTURE SYSTEM FUNCTIONALITY

This chapter identifies performance measures that assess future system functionality of the US 69 corridor. These measures will help KDOT, the City of Fort Scott, and Bourbon County evaluate the continued effectiveness of improvements after their completion.

INTRODUCTION



This chapter identifies performance measures that assess future system functionality of the US 69 corridor. These measures will help KDOT, the City of Fort Scott, and Bourbon County evaluate the continued effectiveness of improvements after their completion and monitor whether the enhanced system on its existing alignment continues to provide an acceptable level of service through the 30-year study horizon.

This chapter includes reserve capacity sensitivity analyses to compare the future system functionality for the three development scenarios (2009 Existing, 2040 No-Build, and 2040 Ultimate) to a theoretical scenario called 2040 Threshold. The 2040 Threshold scenario represents expected traffic operations with the corridor maintaining its regional performance target threshold of level of service (LOS) C/D. This chapter also describes a number of external and regional influences that could cause the US 69 corridor to experience traffic growth above forecast levels.

PERFORMANCE MEASURES

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.

KDOT Priority Formula

KDOT uses its planning database to measure the relative need for major modifications to all roadways on the state highway system. A “Priority Formula” reflects current technology, policy directions, and available data and uses current survey information to update priority ratings. The sidebar lists the factors included in the KDOT Priority Formula.

This US 69 Corridor Management Plan considers several of these criteria (shown in bold) as valid performance measures for the future highway. The 2008 KDOT Long Range Transportation Plan has also stressed the need to consider economic criteria for setting priorities for highway improvement projects.

National Corridor Performance Measures

The 2004 National Transportation Operations Coalition (NTOC) **Performance Measurement Initiative Final Report** is one of the primary national resources for transportation-based performance measures. This report provides a wide range of performance measures to consider for any corridor planning initiative. The recommended measures were field-tested in various locations throughout the country and the results were published in a 2008 NCHRP report titled **Guide to Benchmarking Operations Performance Measures**. Although some of the performance measures listed in the adjacent text box do not apply to this study, they are included here for future reference and use by US Highway 69 stakeholders. Neither the 2004 NTOC report nor

NTOC Performance Measures

- Customer Satisfaction
- Incident Duration
- Crash Rates
- Total Freight Movement
- Travel Time – Facility (aka Travel Time Index)
- Throughput – Vehicle (aka Volume to Capacity (V/C) Ratio)
- Heavy Truck Traffic
- Travel Time Reliability (aka Buffer Time Index)
- Level of Service - LOS
- Bridge width

KDOT Priority Formula Criteria

- **Crash rate**
- Shoulder type
- Lane width
- **Current traffic volume**
- **Projected traffic volume**
- **Traffic volume/capacity**
- Bridge deck condition
- Bridge structure condition
- Pavement surface condition
- Pavement structure condition
- Narrow structures
- **Route classification**
- Shoulder width
- Sight distance
- **Truck traffic**
- Bridge width

the 2008 NCHRP report present quantitative performance criteria or benchmark values as baseline measurements. However, this study combines qualitative and quantitative performance measurements and thresholds to evaluate roadway function.

US 69 Corridor Performance Measures

Discussions with the project Steering Committee and reviews of KDOT, NCHRP and FHWA publications helped select the performance measure benchmarks described in this section.

Customer Satisfaction

Periodic surveys can measure the public’s satisfaction with roadway condition, management and traffic operations on a given segment of highway. The survey instrument includes a baseline set of questions customized to local conditions and concerns, and may be administered once or repetitively to gauge changes in perception. The survey may evaluate local community concerns such as acceptable levels of truck traffic through the city, or regional issues such as the efficacy of freight traffic movements along US 69.

Incident Duration

Incidents along the highway cause congestion and delays. In urbanized areas, even minor incidents can intensify existing congestion by slowing traffic flow or blocking the use of lanes. Incident duration measures the smaller of elapsed time from notification of an incident until removal of all evidence, or until all response vehicles have left the incident scene. Although this study used crash data, it did not evaluate in-



cident duration because crashes are not a significant cause of congestion in Fort Scott. This performance measure is more relevant to densely populated areas with congested freeways or other high capacity roadways.

Crash Rates

Traveler safety is always a top priority along a highway corridor, and to this end, KDOT and local law enforcement officials compile crash records by location and track a number of statistical categories annually. KDOT defines statewide crash rates on specific highway segments in crashes per million vehicle miles traveled (MVMT), and at intersections in crashes per ten million entering vehicles (TMEV). Calculating these rates annually helps KDOT identify high risk segments and intersections on the state highway system.

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. KDOT and local officials should also examine the outcomes of implementing this plan's recommendations, paying special attention to truck-related crash rates because of anticipated growth in freight traffic.

Total Freight Movement

US 69 is a critical rural link between the State's agriculture and manufacturing industries and statewide, regional, and national markets. Statewide growth in freight movements, projected at about 1.5% annually for the next 20 years, may challenge future system capacity. Faster than anticipated growth rates along US 69, considered both alone and in comparison with other corridors, could reduce corridor performance. Customer satisfaction surveys can identify any operational effects of these increases from both local and regional perspectives.

The 2009 Kansas Statewide Freight Study indicates that KDOT data collection efforts do not focus on forecasting regional freight system demand, and are generally limited to truck traffic volumes and transportation system condition and performance. More specific information is available from other sources and should be utilized to measure the effect of increasing freight traffic on road performance.

Traffic Flow

Most measurements of traffic flow along corridors or highway segments apply to congested urban areas and freeways. However, the measures presented here are appropriate to US 69 in the study area. People perceive congestion differently – a good traffic day in the Kansas City metropolitan area may be considered unacceptably congested in Fort Scott. Therefore, thresholds for some measures are adjusted accordingly.

1. Facility Travel Time

(Travel Time Index)

The Travel Time Index looks at the average time required to traverse a section of roadway in a single direction. The index also can compare travel conditions in the peak period and free-flow conditions to define extra time spent during a trip. The 2004 NTOC report established a 30% increment in travel time as a threshold for considering a facility "congested." This performance measure is most meaningful within the Fort Scott urban corridor, because the traffic operations analysis shows that the rural section of US 69, widened to four lanes, will operate at LOS A.

2. Average Speed

This factor evaluates the average speed of vehicles measured in a single lane for a single direction of flow at a specific location. Ideally, vehicles will travel through the corridor at or near the posted speed limit and significantly

lower speeds indicate a disruption in traffic flow. The travel time performance method can be employed by comparing average speed during peak and off-peak periods. A 50% reduction of the average free flow speed during the peak periods indicates significant congestion and difficulty in traffic movement through the area. Again, this measure is most relevant to the Fort Scott urban area.

3. Vehicle Throughput

(Volume to Capacity (V/C) Ratio)

Throughput performance measures the number of vehicles traversing a roadway section in one direction per unit time or the number of vehicles traversing a screen line in one direction per unit time. The number of vehicles counted is then compared to the design capacity of the roadway. One of the most venerable engineering methods for gauging congestion is the volume-to-capacity (V/C) ratio. KDOT has selected a V/C ratio of 0.7 as a threshold of moderate congestion or worse.

For travelers, the word "congestion" conjures up such strong images as "delay," "air pollution," and "traffic jam." In practice, however, travelers and engineers, local and regional users, and residents and businesses, can have vastly different ideas of what constitutes a congested roadway. Ultimately, KDOT must evaluate congestion against the relative needs of all similar facilities in the state.

4. Heavy Truck Traffic

The volume of heavy truck traffic on US 69 is a highly relevant measure for two reasons. First, most of this traffic stream is driving through, not to, Fort Scott and Bourbon County, and want to get to their destinations as quickly as possible. Increasing heavy truck volumes may contribute to unacceptable delays for these users and undesirable economic impacts to Fort Scott area businesses.

Table 10.1 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	≤ 11	≤ 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

Source: Highway Capacity Manual

Second, local traffic as well as heavy trucks use US 69 through Fort Scott, apparent because 2009 ADT volumes are substantially greater in Fort Scott than north or south of the city (Figure 4.2). The interaction of local and through traffic contributes to the concerns about congestion, delay and safety. There are no specific threshold values to quantify “unacceptable” mixtures of traffic streams. However, indicators that suggest unacceptable traffic friction include volume of heavy trucks, level of service changes, facility travel time, customer satisfaction survey results, and crash statistics involving heavy trucks and automobiles. A suggested threshold may be an average of 2,000 daily through truck movements on US 69 in the study area.

5. Travel Time Reliability

(Buffer Time Index)

Repetitive vehicle delays for the current time-of-day, day-of-week, and day type are considered “recurring delays”. Travelers who frequently use congested roadways expect recurring delays at specific points and plan accordingly. Similarly, freight travel times may be adjusted to compensate for delays on a congested highway. The impact of recurring delay is demonstrated by the Travel Time Reliability and Level of Service performance measures.

The Travel Time Reliability performance measure describes the incremental time that must be planned over expected travel time (as defined by Facility Travel Time) to ensure travelers a 95% on-time arrival rate at their destinations. This increment should not exceed 30% of the average trip duration. This measurement can be calculated for long, regional trips, or for specific corridor segments, provided the segment is long enough to provide a valid result. Travel Time Reliability is most relevant in highly urbanized areas, where high

way segments carry a high percentage of local trips.

6. Level of Service - LOS

The transportation level of service (LOS) system is a simple performance measure that assigns a rating by the letters A through F. LOS A represents essentially uninterrupted flow, and LOS F represents a breakdown of traffic flow with noticeable congestion and delay. LOS is a qualitative assessment of traffic operational conditions within a traffic stream and can describe traffic operations for controlled intersections, freeways and divided highways. Table 10.1 summarizes LOS criteria for both signalized and unsignalized (stop sign controlled) intersections, as well as multilane highways. For highway segments, level of service is defined by the number of vehicles per lane mile per lane.

A regional performance target on the border between LOS C and LOS D was identified for signalized intersections, mainline highway segments, and interchange ramps.

Performance Measure Application

Table 10.2 summarizes the performance measures most relevant for this corridor. Taken together, they 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.

As a part of the intergovernmental agreement discussed in Chapter 11, KDOT, the City of Fort Scott and Bourbon County will form a Corridor Advisory Committee, 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 analysis tools.

RESERVE CAPACITY SENSITIVITY ANALYSES

This study included sensitivity analyses, comparing the future system functionality for the three development scenarios (2009 Existing, 2040 No-Build, and 2040 Ultimate) to a theoretical scenario called 2040 Threshold. The 2040 Threshold scenario represents expected transportation operations with the US 69 corridor operating at a regional performance target threshold on the border between LOS C and LOS D, identified through discussions with the project Steering Committee.

The sensitivity analyses were performed at the signalized intersections and mainline segments along the US 69 Corridor in Fort Scott. The sensitivity analyses determines the “reserve capacity” available between the 2040 Ultimate forecasted traffic volumes and the volumes that produce the LOS C/D threshold.

Intersection Operations

The 2040 Ultimate entering PM peak hour traffic volumes at each intersection (shown in Appendix A on Figure A.7) were multiplied by growth factors to determine the “LOS C/D Threshold Traffic Volumes”. The factors in Table 10.3 show the future growth (or reserve capacity available) that US 69 through Fort Scott could accommodate before overall intersection operations (with recommended improvements) reach the LOS C/D threshold. A factor of 1.00

Table 10.2 Summary of Performance Measures

Performance Measure	Measurement	Application to the US 69 Corridor Management Plan	Benchmark Value
Customer Satisfaction	“Very Satisfied” Through “Very Dissatisfied” or “Don’t Know/N/A”	Survey the following stakeholders regarding US 69 operations: 1. Local businesses to determine if congestion is affecting their services. 2. Local residents to determine if congestion is affecting their quality of life. 3. Public services to determine if congestion is inhibiting service. 4. Freight carriers to determine if congestion is affecting their route selection or operations.	Dependant upon the survey type and question makeup. ¹
Incident Duration	Median minutes per incident	Not considered in this study.	N/A
Crash Rate	Crashes per million vehicle miles traveled	Evaluate the safety of segments of the corridor relative to similar state highways.	State-wide average for similar facilities. ²
	Crashes per ten million entering vehicles	Evaluate the safety of intersections relative to others in Kansas.	State-wide average for similar facilities. ²
Traffic Flow			
1. Facility Travel Time (Travel Time Index)	Minutes per trip	Evaluate driver expectations for through traffic time of travel along the corridor within Fort Scott. Serves as the basis for delay and reliability measures.	Travel times greater than 30% of baseline during peak periods. ¹
2. Speed	Miles per hour	Evaluate if vehicles are flowing through specific corridor locations within a reasonable range of the posted speed.	Not more than 50% mph below the posted speed limit during peak periods.
3. Vehicle Throughput (Volume to Capacity (V/C) Ratio)	Vehicles per hour	Evaluate the number of vehicles expected to move through the corridor as designed in comparison to actual operations. This measure has a long history of use originating from planning applications.	V/C ratio = 0.7 ⁴
4. Heavy Truck Traffic	Heavy Trucks per Day	Monitor the volume of heavy truck traffic per day through the study area.	2,000 heavy trucks per day.
5. Travel Time Reliability (aka Buffer Time Index)	Minutes. May also be expressed as a % of total trip time or as an index.	Evaluate if travelers within and through the corridor need to allow for an unacceptable amount of time in addition to the average trip duration. Reliability measures are expected to grow in use and importance in determining funding and policy.	No more than 30% of the average trip duration for local and through traffic. ¹
6. Level of Service	Seconds of delay correlated to a grade of A-F	Summarize the relative vehicle control delay at signalized and unsignalized intersections, as well as on segments of highway.	Signalized Intersections = 35 seconds/vehicle. Unsignalized intersections = 25 seconds/vehicle. Highway Segments = 26 pc/mile/lane.

(1) 2004 NTOC Report
 (2) KDOT Annual Traffic Accident Fact Book
 (3) 2009 KDOT Statewide Freight Study
 (4) KDOT 2008 LRTP
 (5) 2009 Corridor Advisory Committee
 (6) FHWA

Table 10.3 Comparison of Total Entering PM Peak Hour Traffic Volumes to LOS C/D Threshold

Intersection on US 69	2009 Existing	2040 Ultimate	2040 Threshold	Reserve Capacity Factor
Jayhawk Rd.*	900	1,260	1,385	1.10*
25th St.	1,150	1,760	3,430	1.95
23rd St.	1,440	2,190	3,615	1.65
18th St.	1,455	2,495	3,870	1.55
12th St.	1,310	2,200	3,850	1.75
6th St.	1,125	2,120	3,810	1.80
3rd St.	1,220	1,915	3,065	1.20
NB Wall St. Ramps*	653	920	1,105	1.20*
SB Wall St. Ramps*	548	775	775	1.00*

* unsignalized intersection; factor reflects minor movement LOS

Table 10.4 Comparison of Mainline PM Peak Hour Traffic Volumes to LOS C/D Threshold

Location on US 69	2009 Existing	2040 Ultimate	2040 Threshold	Reserve Capacity Factor
County Line to K-7 (2-lane)	625*	910*	955*	1.05*
County Line to K-7 (4-lane)	N/A	910	4,780	5.25
K-7 to Jayhawk Rd	625	910	4,780	5.25
Wall St. to US 54	655	865	4,585	5.30
NB Wall St. Ramps Diverge	575	710	4,225	5.95
NB Wall St. Ramps Merge	365	500	2,975	5.95
SB Wall St. Ramps Merge	330	485	2,695	5.55

* Assumes 2-lane cross section

Table 10.5 US 69 Intersection PM Peak V/C Ratios

Location	2009 Existing	2040 No-Build	2040 Ultimate	2040 Threshold
Jayhawk Rd.*	0.32*	0.41*	0.50*	0.61*
25th St.	0.37	0.38	0.47	0.92
23rd St.	0.46	0.50	0.76	1.27
18th St. / National Ave	0.38*	0.48	0.62	0.86
12th St.	0.54	0.58	0.66	1.07
6th St.	0.38	0.42	0.55	0.97
3rd St.	0.53	0.65	0.84	1.24
NB Wall St. Ramps*	0.16*	0.20*	0.28*	0.41*
SB Wall St. Ramps*	0.20*	0.35*	0.36*	0.36*

* unsignalized intersection

Table 10.6 US 69 Mainline PM Peak V/C Ratios

Location	2009 Existing	2040 No-Build	2040 Ultimate	2040 Threshold
County Line to K-7	0.23	0.31*	0.33*	0.35*
K-7 to Jayhawk Rd	0.08	0.11	0.12	0.64
Wall St. to US 54	0.09	0.12	0.12	0.62

* assumes 2 lane cross section



indicates that the intersection is at capacity in 2040; a factor of 1.10 indicates that the forecasted 2040 Ultimate entering traffic would need to grow by 10% before capacity is reached.

Mainline and Interchange Operations

The 2040 Ultimate PM peak hour traffic volumes on each roadway segment were multiplied by growth factors to determine the LOS C/D Threshold traffic volumes. The factors in **Table 10.4** show the future growth (or reserve capacity available) that US 69 through Fort Scott could accommodate before mainline and interchange operations (with recommended improvements) reach the LOS C/D threshold. As before, a factor of 1.00 indicates that the segment is at capacity in 2040; a factor of 1.10 indicates that the forecasted 2040 total traffic would need to grow by 10% before capacity is reached.

The sensitivity analysis indicates that all of the signalized intersection and mainline segments along the US 69 corridor would have substantial reserve capacity beyond the 2040 Ultimate traffic volume forecasts. These analyses assume that all system improvements previously identified in this plan are in place. Additional changes to signal phasing and timing could expand capacity beyond these levels.

Volume to Capacity Ratio Comparison

As mentioned earlier, the volume-to-capacity (V/C) ratio is a standard method for measuring congestion. In its 2008 Long Range Transportation Plan, KDOT's standard indicator for moder-

ate or worse congestion is a V/C ratio of 0.7 or higher.

In **Table 10.5**, traffic volume scenarios are divided by the calculated roadway capacity for each intersection to generate V/C ratios. The Synchro traffic analysis program was used to determine intersection values, and are the maximum V/C ratio experienced for any individual turning movement. This process indicates that the only intersections with individual turning movements likely to experience moderate congestion for 2040 Ultimate conditions are 3rd Street and 23rd Street.

In **Table 10.6**, traffic volume scenarios are divided by the calculated roadway capacity for each segment to generate V/C ratios. Roadway segment V/C ratios were determined using Highway Capacity Manual (HCM) equations and HCS software. As shown, none of the US 69 mainline segments are expected to experience even moderate congestion for the 2040 No-Build or 2040 Ultimate traffic levels.

EXTERNAL AND REGIONAL INFLUENCES

A number of external and regional influences may cause the US 69 corridor to experience growth above the expected volumes described in Chapter 7. These influences, and their probable effects, are discussed below.

US Highway 69 Association

The US 69 Association has a stated goal to complete US 69 as a multilane facility from I-435 in Overland Park to I-44

in Oklahoma. The Association includes officials and business leaders along the US 69 corridor, with participants from Johnson, Miami, Linn, Bourbon, Crawford and Cherokee counties. This group has successfully secured funding for building US 69 to freeway standards from Overland Park to Fort Scott. The Association and other regional interests want to accelerate economic development along the corridor, and will be vitally involved in discussions over the design of US 69 south of Fort Scott.

Completion of US 69 to a Four-lane High Speed Facility

As previously noted, KDOT has recently completed freeway construction of US 69 from Overland Park to Fort Scott, and is developing plans for a similar freeway between I-44 in Oklahoma to just north of Arma, including a bypass of Pittsburg. As discussed earlier, KDOT is beginning to study options for the remaining segment between Arma and Fort Scott. If the Arma to Fort Scott segment were developed as a freeway, pressure would increase to identify alternatives to the existing alignment through the city. Should a future decision move in this direction, an alignment should be defined as soon as possible to reduce uncertainties about the future use of property along the corridor.

Changes to Regional Freight Routes

Completion of US 69 as a multi-lane facility from Overland Park to I-44 should increase use of the route by through traffic. This study projects that total regional traffic through Fort Scott will grow at an annual rate of 0.25%,



and that regional heavy vehicle traffic through Fort Scott will increase at 1.5% annually. Some traffic now using the multi-lane US 71 in Missouri is likely to shift to a US 69 corridor developed to comparable standards.

This increase in traffic expected by this study could be considerably greater if major industrial and/or commercial generators such as Walmart, Tyson, BNSF, and freight trucking carriers change shipping routes and/or increase the volume of freight shipped along the US 69 corridor. On the other hand, future improvements to US 71, including designation of the route as I-49 in Arkansas and Missouri, would have an opposite effect on regional freight shipping routes, potentially decreasing truck traffic on US 69.

Economic Development

Major new developments along US 69, such as construction of a major business park or regional inter-modal distribution center similar to the BNSF Intermodal Facility and the New Century Air Center in Johnson County, would greatly affect this study's traffic forecast assumptions. If major entities decided to construct a similar facility along either the US 69 corridor in Kansas or the US 71 corridor in Missouri, traffic forecasts and travel patterns would change substantially.

SUMMARY

External and regional influences may cause the US 69 corridor to experience traffic volume levels different from those foreseen by this study. The sensitivity analyses presented in this chapter measure the capacity of an improved US 69 to accommodate the possibility

of higher traffic volumes. These analyses indicated that all of the signalized intersections and mainline segments along the US 69 corridor have reserve capacity beyond the 2040 Ultimate traffic volume forecasts. The projected 2040 Ultimate traffic volumes could be increased by at least 50% before traffic operations would exceed the regional target threshold of LOS C/D, with the following exceptions in Fort Scott:

- The unsignalized ramp terminal intersections of US 69 with Wall Street would operate at or near capacity with 2040 Ultimate traffic volumes. These intersections would need signalization to increase reserve capacity.
- 2040 Ultimate traffic volumes at the intersection of US 69 with 3rd Street could be increased by only 20% with recommended improvements. Additional capacity improvements would be needed here if traffic volume grows beyond this level.
- At the unsignalized intersection of US 69 with Jayhawk Road, the cross street movement 2040 Ultimate traffic volumes could be increased by only 10% with the recommended improvements. Traffic signalization at this location would increase the capacity of this intersection.

The only US 69 intersections in Fort Scott where individual turning movements would experience moderate congestion levels ($V/C > 0.7$) for 2040 Ultimate conditions are 23rd Street and 3rd Street. No US 69 mainline segment is expected to experience even moderate congestion ($V/C > 0.7$) for either the 2040 Ultimate conditions or 2040 Threshold traffic levels.

With development of the system improvements recommended by this plan,

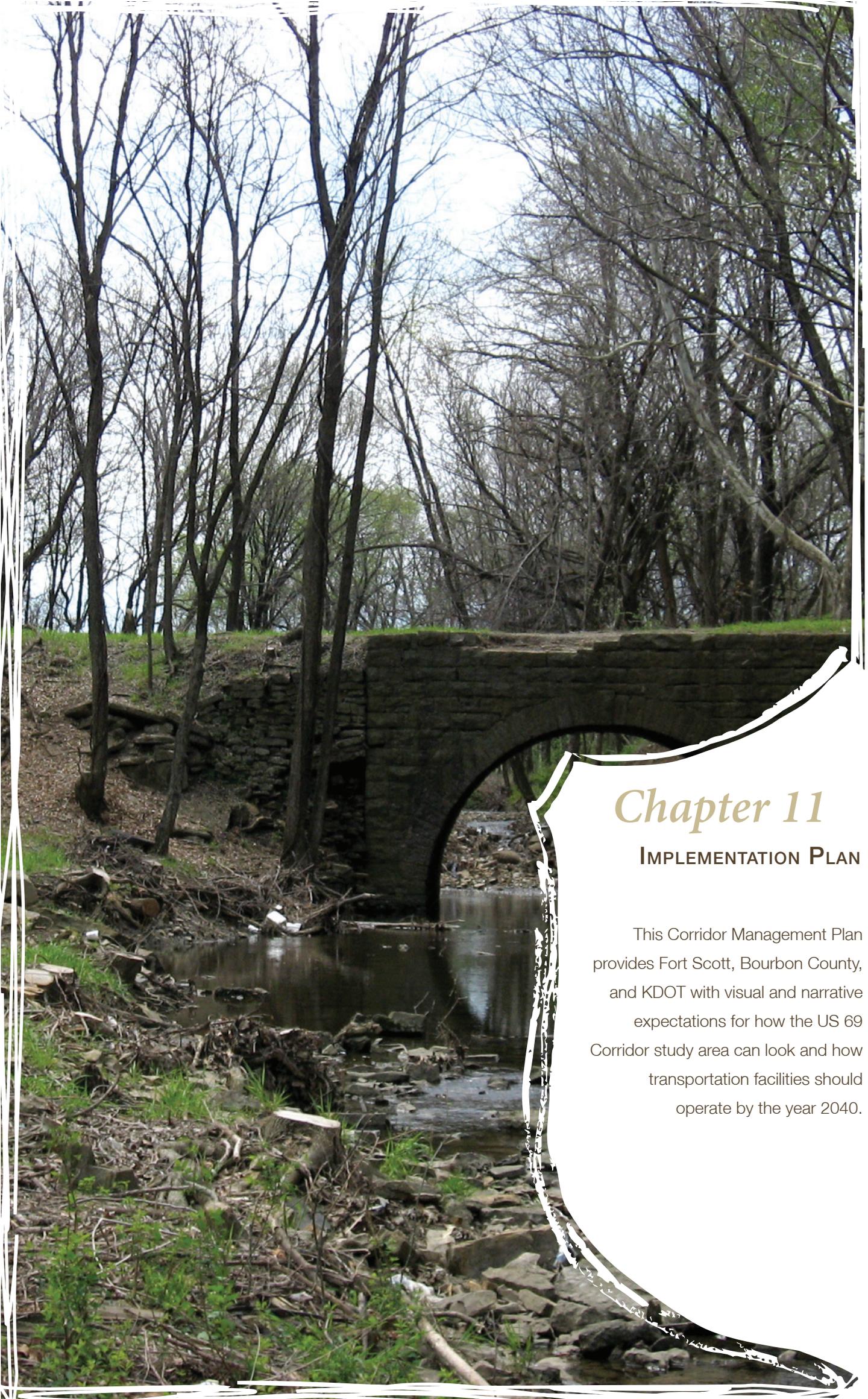
the US 69 corridor through Fort Scott and Bourbon County will function at or above the regional performance target threshold of LOS C/D through 2040. However, satisfaction of local and regional customers, along with external political and business interests, may determine that the existing alignment 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. Finally, a great street is a delight for residents and visitors alike, and is demonstrably effective at attracting travelers off the freeway to enjoy this city and its unique features.

The US 69 Corridor Management Plan presents an ambitious but realistic program for this important corridor. Chapter 11's implementation plan presents 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 of this important project.







Chapter 11

IMPLEMENTATION PLAN

This Corridor Management Plan provides Fort Scott, Bourbon County, and KDOT with visual and narrative expectations for how the US 69 Corridor study area can look and how transportation facilities should operate by the year 2040.

INTRODUCTION



This Corridor Management Plan provides Fort Scott, Bourbon County, and KDOT with a vision of US 69 and its surrounding area, describing how the corridor can function as a transportation facility, look as an urban environment, and perform as an economic asset by the year 2040.

The project implementation plan sets priorities for improvement projects, provides cost estimates, identifies the stakeholder(s) responsible for administering funding and construction, and introduces a framework for corridor oversight and preservation.

This chapter summarizes methods of achieving that vision, including

- Statements of Probable Cost and Priority Criteria
- Financing Strategies
- Corridor Coordination and Oversight
- Corridor Preservation Strategies

STATEMENTS OF PROBABLE COST AND PRIORITY CRITERIA

Statements of probable cost are included for each improvement project recommended in this study. These very preliminary statements are intended only as an approximate guide for decisions on project implementation. More detailed estimates of cost will be prepared during the detailed design process for individual projects.

Project Priorities

Recommended projects fall into two categories: transportation system enhancements and community enhancements. Project priorities for each category depend on different evaluative criteria. For transportation system en-

hancements, these criteria include:

- Ability to improve corridor safety.
- Impact of 2040 system performance.
- Reserve capacity sensitivity analyses.
- External and regional influences.
- Effectiveness at improving local mobility and provide alternative access.

Evaluative criteria for community enhancements include:

- Positive impact or support for the local business environment.
- Ability to generate desirable private investment.
- Improvement of the city's marketing image.
- Accommodation of pedestrian and bicycle transportation.
- Impact on Fort Scott's physical and design environment.
- Cost effectiveness related to community benefits.
- Ability to support other ongoing community initiatives.
- Relative ease of implementation and control of property.

Based on these general criteria, improvement projects are categorized as short-term, medium-term, or long-term priorities. Short-term priority improvements should be implemented within 1-5 years; medium-term within 5-10 years; and low priority improvements within 10-20 years. Projects categorized as "ongoing" will be completed over a number of years in gradual phases.

Stakeholder Responsibility

The following tables define stakeholder responsibility as local (including the City of Fort Scott and Bourbon County), state (primarily the Kansas Department of Transportation), or private, including business leaders, land owners, and developers. Although the stakeholder responsibilities are noted, this plan does not commit these agencies and jurisdictions to fund the recommend improvements.

Transportation System Enhancements

Table 11.1 summarizes recommended transportation system enhancements.

Projects may involve multiple phases, and probable costs presented below represent all phases of each project. The probable cost of the entire proposed transportation system enhancement program is about \$35.6 million. About 65% of these costs are related to three projects: widening of the two-lane rural section of US 69 from K-7 to the county line, a 23rd Street overpass over the BNSF, and full development of an east side circulator road system between US 69 and the railroad. Much of the circulator system will develop over time, consistent with development demands. **Tables A.4 through A.12 in Appendix A** present detailed statements of probable cost for transportation enhancements.

Community Enhancements

Tables 11.2-11.6 present statements of probable cost for the community enhancement program presented in Chapter 6. Each table addresses projects for a specific location, including Downtown Fort Scott, the South National District, the South Main Corridor, the Rural Transition zone, and the US 69/Buck Run greenway corridor. Projects may involve multiple phases, and probable costs presented below represent all phases of each project. **Tables A.13 and A.26 in Appendix A** present more detailed probable cost statements for community enhancement initiatives.

Downtown Fort Scott

The recommended Downtown Fort Scott enhancement program, presented in **Table 11.2**, totals \$6.8 million in public improvements and \$6.7 million in estimated private projects or building improvements. Short-term priority projects include the Wall Street Boulevard and Carscape Plaza. The former performs the important task of linking downtown directly and attractively to the US 69 corridor, while the latter resolves the use of an important downtown site and provides features that support existing downtown businesses.

Table 11.1 Transportation System Enhancement Projects

	Responsible Stakeholder	Probable Cost
Short-term Priority		
23rd St Intersection Improvements	Fort Scott/KDOT	\$260,000
US 69 Widening National Ave to 23rd St	Fort Scott/KDOT	\$3,335,000
18th St / National Ave Intersection Reconstruction	Fort Scott/KDOT	\$2,243,000
3rd St SB Right Turn Lane Extension	Fort Scott/KDOT	\$310,000
US 69 Signal Coordination and Communication	Fort Scott/KDOT	\$146,000
US 69 Signal Ahead Signs/Beacons	Fort Scott/KDOT	\$68,000
US 69 Dilemma Zone Protection	Fort Scott/KDOT	\$43,000
Off System - Railroad Quiet Zone	Fort Scott	\$353,000 ¹
Off System - Main St. One-Way Conversion	Fort Scott	\$32,000
		\$6,790,000
Medium-term Priority		
US 69 Widening K-7 to County Line	KDOT	\$10,200,000
19th/20th St Intersection Improvements	Fort Scott/KDOT	\$1,081,000
US 69 Streetscape - Wall St to 18th St	Fort Scott/KDOT	\$2,670,000
Off System - 23rd St Viaduct & Adjacent Street Improvements	Fort Scott	\$5,210,000 ¹
Off System - S. National Ave Extension	Fort Scott	\$1,842,000
Off System - West Circulation Roads	Fort Scott	\$1,666,000
Off System - East Circulation Roads, Phase One	Fort Scott/ Private	\$850,000
		\$23,746,000
Low Priority		
Off System - South National Ave Extension	Fort Scott	\$1,464,000
Off System - West Circulation Roads, Phase Two	Fort Scott/ Private	\$999,000
Off System - East Circulation Roads, Phase Two	Fort Scott/ Private	\$2,774,000
Jayhawk Rd Signalization	Fort Scott/KDOT	\$100,000
Wall St Ramp Terminal Signalization	Fort Scott/KDOT	\$100,000
Bicycle Network & Sidewalk Improvements	Fort Scott	Varies
		\$5,437,000
GRAND TOTAL		\$35,586,000

¹ 2007 Railroad Study costs have been increased by 7% annually for 2 years

Table 11.2 Community Enhancement Projects-Downtown Development District

	Responsible Stakeholder	Probable Cost
Short-term Priority		
Wall Street Boulevard Streetscape	Fort Scott	\$380,000
Old Fort Boulevard Area	Fort Scott	\$2,772,000
Multi-Use Carscape Plaza (Farmers Market)	Fort Scott	\$713,000
		\$3,865,000
Medium-term Priority		
Wall St Interchange Public Art Project	Fort Scott	\$1,669,000
Urban Townhouse / Multi-Family Housing	Private	\$1,300,000
		\$2,969,000
Ongoing		
Wall St / State St Redevelopment Site	Fort Scott	\$870,000
Wall and State Hotel Redevelopment	Private	\$3,114,000
National Avenue Residential Development	Private	\$900,000
Downtown Building Rehabilitation	Private	\$900,000
Upper Level Residential Reuse (20 units)	Private	\$1,800,000
		\$7,584,000



Table 11.3 Community Enhancement Projects-South National District

	Stakeholder	Cost Estimate
Short-term Priority		
Community Improvement District	Fort Scott	NA
Street and Streetscape Improvements	Fort Scott, CID	\$2,800,000
		\$2,800,000
Medium-term Priority		
South National Commercial Center	Fort Scott/Private	\$1,842,000
NW 18th & National Commercial Development	Private	\$1,558,000
East National / National Intersection Improvements	Fort Scott	\$500,000
		\$3,900,000
Ongoing		
Private Building Upgrades	Private	\$1,000,000
		\$1,000,000

Table 11.4 Community Enhancement Projects-South Main Corridor

	Stakeholder	Cost Estimate
Short-term Priority		
Community Improvement District	Fort Scott	NA
Phase One Streetscape, 18th to 23rd Streets	Fort Scott	\$240,000
18th Street Intersection Gateway	Fort Scott, CID	\$320,000
		\$560,000
Medium Priority		
Phase Two Streetscape, 23rd to Jayhawk	Fort Scott	\$317,000
Great Circle Connection	Fort Scott	\$150,000
Improved utilization of existing commercial sites	Fort Scott/Private	\$1,500,000
		\$1,967,000
Long-term Priority		
New Development Sites	Private	\$4,000,000
		\$4,000,000
Ongoing		
Access Management and Parking Lot Design	Fort Scott/KDOT/ Private	\$1,000,000
		\$1,000,000

Table 11.5 Community Enhancement Projects-Rural Transition

	Stakeholder	Cost Estimate
Short-term Priority		
Community Improvement District	Bourbon County	NA
Overlay District and Interlocal Land Use Agreement	Fort Scott/ Bourbon County	NA
Medium-term Priority		
Design Features – Monument Markers	Fort Scott/ Bourbon County	\$200,000
Ongoing		
Land Use Management – Industrial Standards	Bourbon County	NA
Land Use Management – Industrial / Commercial Development	Bourbon County	NA
Land Use Management – Agricultural	Bourbon County	NA
Stormwater Management	Bourbon County/KDOT	NA

Table 11.6 Community Enhancement Projects-US 69/Buck Run Greenway

	Stakeholder	Cost Estimate
Short-term Priority		
Trail and Bridges, Wall to 12th Street	Fort Scott	\$507,000
Cultural Amenities, Wall to 12th Street	Fort Scott	\$455,000
Environmental Enhancements, Wall to 12th Street	KDOT, Fort Scott	\$593,000
		\$1,555,000
Medium-term Priority		
Trail, 12th Street to 18th Street	Fort Scott	\$539,000
Cultural Amenities, 12th to 18th Street	Fort Scott	\$438,000
Environmental Enhancements, 12th to 18th Street	Fort Scott	\$323,000
		\$1,300,000
Long-term Priority		
Trail, Wall Street to Marmaton River	Fort Scott	\$125,000
3rd Street Underpass Pedestrian Improvement	Fort Scott/Private	\$200,000
3rd Street Overpass Reconstruction	Fort Scott/KDOT	\$1,500,000
6th Street Overpass Reconstruction	Fort Scott/KDOT	\$1,500,000
		\$3,325,000

South National District

The recommended South National District improvement program, presented in Table 11.3, totals \$4.2 million in public improvements and \$3.5 million in corresponding private development. A Community Improvement District should be established at the beginning of the development process. Major capital improvements begin with modification of the district’s street system, coordinated with the redesign of the 18th and US 69 intersection.

South Main Corridor

The recommended South Main program, presented in Table 11.4, totals

\$1.4 million in public improvements and \$6.2 million in corresponding private development and improvements. A Community Improvement District should be established at the beginning of the development process. Initial capital development along the corridor should include sidepath construction, funded as an element of the US 69 improvement between 18th and 23rd Streets.

Rural Transition

Recommended improvements for the Rural Transition area south of Jayhawk Road total \$200,000 in public gateway improvements. Short-term priorities for this corridor are access control and land use policies. While these are not capital improvements, they are important to

maintaining control over development in this part of the study area.

US 69/Buck Run Greenway Corridor

Recommended improvements for the greenway between the river and 18th Street total \$6.2 million in public projects. This project will be accomplished in phases, with trail development, creek reconstruction and enhancements, landscaping and greenway development, pedestrian bridge improvements and other elements continuing incrementally.

THE FUTURE OF THE CORRIDOR

Each project described in this chapter helps achieve the important and necessary goals for the US 69 Corridor and brings added value to the city and county. The following section describes how the corridor might operate as projects are completed according to the implementation schedule

The Corridor after Five Years

After five years, residents of Fort Scott and travelers along US 69 will see dramatic improvements along the highway and in the surrounding area. Most apparent will be the widening of US 69 from 18th to 23rd Streets, providing a much needed left-turn lane along this commercial segment. The angled divergence at South National will be replaced by a signalized, standard intersection, leading motorists west along a realigned 18th Street. An attractive gateway will identify a revitalizing South National business district, further enhanced by new sidewalks, landscaping, and more convenient parking. A wide sidepath along the west side of the widened US 69 will provide safe access to pedestrians and bicyclists traveling to corridor businesses.

US 69 travelers will also notice important, although more subtle, improvements along other parts of the corridor in Fort Scott. Improved signage and beacons will provide motorists with better advance warning as they approach at-grade intersections at 3rd, 6th, and 12th Streets. This part of the corridor will also look better, as the first stage of landscape enhancements create a beautiful green corridor through the center of the city. But US 69 will be a pleasant experience for people on foot and on two wheels as well. The Buck Run Greenway Trail will be complete between Wall and 12th Street, linking downtown with the city park and high school. The creek channel itself will be greatly improved, providing an attractive environmental feature and improving stormwater management. One of the most important and appreciated changes will be something that people will neither see nor hear – the presence of train horns – with the implementation of quiet zone improvements from Wall Street to East National Avenue.

Downtown Fort Scott, one of the region's most important and distinctive assets, will also experience major positive changes. A landscaped boulevard,

honoring people who have served our country in the military from the time when Fort Scott was active and before, will lead visitors to national historic sites and to downtown. Once there, an improved traffic pattern and green space system will enhance their experience in town and a two-way Main Street will provide them with an easy way to patronize district stores and restaurants.

The “Carscape Plaza” at Wall and Main will be a center of activity, hosting events such as the weekly Farmers’ Market and special events, and providing convenient parking when not otherwise used. Public investment projects like the Wall Street boulevard will make downtown development especially attractive, and may include construction of a new hotel at the Wall Street interchange.

The Corridor after Ten Years

The second phase of corridor development will build from the major changes of the first five years. During this period, the two-lane rural section south of the city to the county line will be upgraded to a four-lane divided facility. Train horns and traffic delays will be a thing of the past with the completion of a 23rd Street grade-separated crossing of the BNSF main line. Local residents will have new routes to destinations in the south part of the city when South National Avenue is extended to 23rd Street. The US 69 sidepath will also be extended to Jayhawk Road, providing pedestrians and cyclists with new access to Walmart, the hospital, and other destinations. With improved local and regional access, available sites east and west of the highway will begin to develop, and will be served by a planned local street network.

Along the in-city segment of US 69, the second phase of corridor enhancements, including the Buck Run Greenway Trail, arts and cultural features, and creek enhancements, will be completed to 18th Street. A unique public art installation, possibly celebrating the heritage of Fort Scott as a continuing leader in the evolution of photography and as the hometown of Gordon Parks, will punctuate this distinctive, green corridor. A reconstructed 6th Street pedestrian overpass will provide both a functional and visual feature to the central part of US 69 through Fort Scott.

The South National district, buttressed by a convenient street pattern, landscaped sidewalks, and streetscape en-

hancements will continue to improve, as new sites created by the revised street pattern begin to develop. A resurgent downtown will also begin to attract new residential development, as sites with deteriorated buildings along National Avenue near the river develop with new urban townhomes.

The Corridor in Later Years

Continued development along US 69 will include completion of industrial areas and parks on the east side of the highway, extending as far south as the K-7 interchange. Work on the local street system will continue, providing area businesses with good circulation throughout the area. Major economic development will continue to take hold in the downtown, South National, and South Main districts, a consequence of the emergence of US 69 as a safe and attractive transportation facility and a vital community asset. Finally, the “Great Circle” concept will be fully realized, with connection of the Buck Run Greenway Trail to the riverfront, development of the Riverfront Trail to Gunn Park, and development of the final arc of the circle through the community college and fairgrounds.

FINANCING STRATEGIES

Both traditional and innovative financing sources and partnerships will be required to complete the US 69 Corridor improvement program. This section discusses financing currently available options for corridor management projects. While new, private development can offset some costs of corridor modifications and off-system improvements, KDOT and local jurisdictions hold primary responsibility for funding and executing the plan. At a minimum, new private developments should be required to:

- Dedicate necessary right-of-way for US 69 improvements and the local street network;
- Build improvements required to accommodate the traffic impact of developments (i.e., turn lanes, local streets, reverse frontage (backage) roads, etc.); and



- Post a bond for future improvements (traffic signals, turn lanes, etc.)

Traditional Financing

Traditional financing mechanisms include federal and state transportation programs, real and personal property taxation, sales taxation, economic development tax exemptions, special assessments, and use of the Main Trafficway Act. Techniques presented below focus on local funding mechanisms.

Improvement Districts (City, County)

Within Improvement Districts, cities and counties can build public improvements, financed by general obligation bonds retired by special assessments on benefited properties. This technique is often used to finance construction of new sidewalks in existing developments. Properly used, it ensures that existing property owners do not pay for improvements that do not benefit them. State statutes establish a specific process for establishing a district and assessing properties within that district.

Main Trafficway (City)

Fort Scott should approve an ordinance that designates US 69 as a Main Trafficway, a facility that moves traffic within and outside the city. This designation authorizes the city to improve or reconstruct such a trafficway, and to purchase or condemn land necessary for improvements. The city can pay for improvements and acquisition from the general improvement fund, internal improvement fund, other available funds, or by issuing general obligation bonds. Voter approval of bond issues for Main Trafficways is not required. This method is often combined with the improvement district statute to finance street improvements.

Traditional Municipal Bonds (City, County, KDOT)

Fort Scott and Bourbon County may issue long-term debt to finance projects, to be retired by a variety of traditional and alternative revenue sources. Among other advantages, bonding provides front-end financing that allows governments to complete projects in response to critical priorities or favorable financial markets. Types of municipal bonds include:

- General obligation bonds, payable from a general tax levy on all taxable property within the city.
- Revenue bonds, repaid from a pledge of the revenue from a specified income-generating facility or source.
- Special assessment bonds, repaid, in whole or in part, by special assessments on properties benefited by improvements within an assessment district. These bonds are general obligations of the issuer that backs debt retirement by its full faith and credit.
- Special obligation bonds used to finance redevelopment projects. These bonds are payable from incremental property tax increases resulting from the redevelopment in an established redevelopment district, pledges of a portion of the revenues received by the issuer from transient guest, sales and use taxes collected from taxpayers doing business in a redevelopment district, franchise fees, private, state or federal assistance, or any combination of these sources.

Alternative Financing

A variety of non-traditional mechanisms can be used to finance recommended improvements and provide incentives for desirable development.

Impact Fees (City, County)

Impact fees are one-time regulatory fees assessed against projects to cover the costs for necessary capital facilities, based on the demand generated by the new development; payment of these fees is a condition for project approval. An impact fee system requires adoption of a fee calculation methodology for the fee, and a system of credits, exemptions and appeals. Typically, a project pays a transportation impact fee based on the amount of additional traffic generated (often measured by the PM peak). Impact fees must meet the test of a “critical nexus” – that is, projects funded by fee proceeds must directly address impacts created by payers of that fee. Impact fees are most frequently used in high growth areas, and Fort Scott should pursue other financing strategies before considering this method.

Excise Tax (City, County)

Excise taxes are levied on certain activities or the exercise of a privilege, such as business done, income received, or privilege enjoyed. Excise taxes have been used to fund transportation network improvements that are required to support development, and may be structured as a tax on the platting of lots. The tax rate may be based on such factors as proposed building or land areas or vehicles added to the traffic system. Excise taxes are not required to meet the constitutional benefit or critical nexus tests of regulatory fees such as impact fees. A development excise tax is only available to local governments with a development excise tax in place before July 1, 2006; communities with such a tax must receive voter approval to increase the rate.

Transportation Development District (City, County)

A Transportation Development District can help build, maintain, and finance a broad array of transportation projects,

including streets, roads, highway access roads, interchanges, bridges, and mass transit facilities. A transportation development district may levy a sales tax of up to 1%, in addition to any special assessments within the district. Its formation requires a petition signed by owners of all of the land area within the proposed district. The governing body must hold a duly noticed public hearing before adopting the resolution or ordinance creating the district and approving the method of financing projects within the district. A TDD could help fund maintenance of roadscape improvements such as the Wall Street boulevard and landscaped medians, and street trees and other landscaping.

The district may also issue bonds backed by the revenues received from properties in the district from the imposed sales tax or special assessment. This technique can also be used to help finance key portions of the adjacent local street network. Statutes provide flexibility in defining district boundaries, with the agreement of all included property owners. This tool should be considered for funding, particularly when a property owner or owners want to develop land at an access point with a sales tax generator.

Transportation Utility Fee (City, County)

A Transportation Utility Fee (TUF) is collected from residences and businesses within a city's or county's corporate limits tied to the use and consumption of the transportation system. TUFs may not require voter approval and revenues may be used for maintenance and operations costs, as well as facilities construction. Utility fees are collected from all development, both existing and new with connection to the existing system. Charges are based on usage estimates of trips by land use and project budgets. This technique has significant potential as a funding strategy, but requires careful coordination with legal counsel to ensure a defensible structure. Fort Scott should consider other financing strategies discussed here before considering a TUF.

Tax Increment Financing (City, County)

Tax Increment Financing (TIF) uses added, or "incremental," taxes created by a project to finance public infrastructure related to that project. Eligible incremental taxes include all of part of increases in property tax, guest taxes, added local sales taxes from business ac-

tivity within the district, and increased franchise fees. TIF funding can provide funds either as collected (pay-as-you-go) or through special obligation tax increment bonds repaid over twenty years. TIF can be used only in locally designated redevelopment districts that fall into at least one of the following categories :

- Blighted
- Blighted and in a 100-year flood-plain
- Intermodal transportation area
- Major commercial entertainment and tourism area
- Conservation (becoming blighted)
- Major tourism area
- Historic theater
- Enterprise zone
- Environmentally contaminated area

Consideration of TIF should include a specific analysis of potentially eligible sites and economic costs and benefits. This tool can provide extremely useful incentives for private developments and investments that may result from implementing the corridor management plan.

Sales Tax and Revenue Bond Districts (City, County)

Under this mechanism, the city can issue special obligation bonds in specific districts (called STAR bond project districts) to finance individual projects in the district (STAR bond projects). These bonds are retired by allocating the city and county sales and use taxes and incremental state sales taxes collected in the city portion of the district. STAR bonds can be used in combination with property tax related TIF proceeds and local sales, use and franchise fees to repay special obligation bonds.

Community Improvement Districts (City, County)

Community Improvement Districts (CID) may be established to finance a variety of the improvements and services proposed by this plan. Special obligation and full faith and credit bonds may be issued to finance projects, subject to a defined process for filing and voting against the district. In addition to improvements, bond proceeds may be used for preliminary reports, plans and specifications; publication and ordinance or resolution preparation costs; necessary fees of consultants; bond issuance and interest costs; and city/county administrative costs not to exceed 5% of

total project cost. The development of the South National Business District is an appropriate use of the CID tool.

General Contracting Authority (City, County, KDOT)

The state constitutional home rule amendment and Chapter 19 of the Kansas Statutes give local governments all powers of local legislation and administration that they deem appropriate, with minor exceptions. Chapter 19 sets forth these grants of power, which include the power to regulate through exercise of the police power; the power to zone, tax, charge fees, and impose special assessments; and the ability to purchase, hold, sell and convey land, including exercise of the power of eminent domain.

The home rule provisions give local governments the ability to enter into contracts that enable them to perform the functions of government for the benefit of citizens. Additional state statutes provide specific statutory delegation of power to cities, counties and the KDOT Secretary. Like all payments by public entities, payments or incentives that meet contractual obligations must be used for a public purpose.

When a city provides public incentives to a developer, a contract is employed to establish the duties and obligations of each party. The community will require specific benefits in return for the grant of development incentives. In individual project negotiations with individual developers and landowners, the city and county should emphasize private actions that help implement this plan, without abrogating governmental responsibility to protect public health, safety and general welfare.

CORRIDOR COORDINATION AND OVERSIGHT

Successfully implementing the US 69 Corridor Management Plan will require a close, long-term working partnership between the three governments – the State of Kansas through KDOT, Bourbon County, and the City of Fort Scott. The following recommendations, which involve very little cost, will establish the framework for intergovernmental cooperation and ongoing implementation. These management items are very high priorities that should be put in place as soon as practical.



Interlocal Agreement

The framework for collaborative plan implementation begins with development and approval of an interlocal agreement between Fort Scott and Bourbon County, with potential participation by the Kansas DOT. This agreement should address such issues as corridor management responsibilities, land use regulation, project financing, and sequencing. Elements of the agreement may include:

- Defining the purpose of the corridor plan and the roles and responsibilities of each partner.
- Establishing a Corridor Advisory Committee to review the progress of plan implementation and to evaluate any necessary changes to the study's recommendations over time.
- Agreement to establish a corridor development district that regulates land use and access in the corridor consistent with the US 69 Plan according to common standards.
- Agreement to review and comment by each jurisdiction of all rezoning or development applications or text amendments that affect land use regulation.
- Creation of a joint city/county planning commission and/or joint board of zoning appeals with jurisdiction over the study area corridor.
- Use of City of Fort Scott City staff to administer land use regulations and to process development applications and permits on behalf of the County.
- Conceptual agreements on the use of financing techniques (such as improvement or tax allocation districts) that affect the parties to the agreement.

As a legal and public document, the agreement must be approved by the Attorney General and filed with the county

register of deeds and the Office of Secretary of State. Completing, approving, and filing the intergovernmental agreement will be the first implementation step in the US 69 improvement process. Corridor land use regulations may be adopted as part of the approval of the agreement.

Corridor Advisory Committee

A standing Corridor Advisory Committee should be a key provision of the Interlocal Agreement. The committee must include city, county, and state government representatives, and community interests, businesses, and other corridor stakeholders. The Committee should meet at least quarterly to guide and coordinate implementation efforts.

Public Education and Outreach

The Corridor Advisory Committee should develop and implement a strategy to build public awareness about the potentials and policies of the US 69 Corridor Management Plan, and to provide updated information on the overall program's progress. This strategy should include education of public officials, special districts, landowners, developers, real estate agents, and local development consultants. It may include ongoing updates through a website, social media, and other communication tools.

Capital Programming and Funding

Each year, the Corridor Advisory Committee, in cooperation with the city and county, should develop a capital improvement program for anticipated projects and improvements along US 69. This disciplined process will help ensure steady progress toward implementing the plan's recommendations, and will help state and local governments provide adequate resources over a longer term. The capital program should also identify specific funding mechanisms for individual projects.

Corridor Preservation Strategies

Corridor preservation strategies control or protect areas necessary for improving both the mainline highway and the supporting street network. These strategies will help:

- Prevent development incompatible the corridor vision.
- Minimize adverse environmental, social, and economic impacts.
- Reduce future displacements of developed property.
- Establish the location of streets, roads, and pathways that support new development opportunities.
- Provide a basis for public and private decision making.
- Reduce future project costs.

This section describes the tools that the city, county, and state can use as partners to maintain the integrity of the corridor and use adjacent properties to their maximum potential for economic growth and community enhancement.

Planning Tools

Comprehensive Planning (City And County)

The City of Fort Scott should adopt the US 69 Corridor Management Plan as a part of the City's comprehensive plan. Adoption as a comprehensive plan element provides a credible framework for public and private land use and investment decisions within the city and its planning jurisdiction. This action requires a public hearing by, and a recommendation from, the Fort Scott Planning Commission, with final action by the Fort Scott City Commission. After adoption, Fort Scott should review other parts of its comprehensive plan, completed in 2007, to eliminate any inconsistencies.

Bourbon County does not have a comprehensive plan, but should officially adopt the Corridor Management Plan following one of two processes:

- Adoption by motion or resolution of the Board of County Commissioners (BOCC), or
- Creation of a county planning commission, followed by a public hearing and action by that planning commission to recommend the Plan for adoption by the BOCC, followed by BOCC action by resolution to adopt the Plan.

The second procedure is preferred because it provides a stronger basis for county policy and decision-making. Bourbon County should put the plan into operation by approving Inter-local Agreement and corridor-specific land use controls.

Official Maps (City)

Fort Scott should adopt an official map that shows the specific location and width of proposed streets, public facilities, public areas, and drainage rights-of-way. The Official Map is used for use when considering the consistency of development applications with the US 69 Corridor Management Plan.

Utility Planning (City, County, KDOT)

The three jurisdictions should coordinate any relevant utility master plans with the Corridor Management Plan to ensure consistency. Decisions about new utility location and related easements should be weighed against their implications for implementing the US 69 Corridor Management Plan. Each jurisdiction should also establish a regular point of contact with each utility provider, ensuring coordination in ongoing planning, capital development, land acquisition, and placement decisions.

Public Improvement Reviews (City, County)

All construction plans that affect public improvements, public facilities or public utilities should be submitted to the City of Fort Scott and/or Bourbon County in a timely manner for review of conformance with the adopted comprehensive plans.

Regulatory Tools

Development Moratorium (City, County)

A development moratorium temporarily halts the processing of development applications for specific types of projects until a guiding governmental activity, such as plan adoptions or ordinance revision, is completed. This action is most appropriate if the city and county are experiencing short-term development pressures that compromise plan implementation. A moratorium on corridor development provides time for the city and county to put appropriate guidelines or other controls in place, and should have a specific expiration date. This tool may be appropriately used while special corridor land use and access regulations and standards are being developed for the US 69 corridor.

Zoning

Public agencies use zoning ordinances to implement comprehensive plans by managing land use. In the US 69 corridor, zoning revisions maybe needed to:

- Establish land uses set forth by the US 69 Corridor Management Plan.
- Create special guidance for access and development design consistent with the recommendations of this plan.
- Provide incentives for private investment in the study area that advances the transportation, land use, and urban design directions of this document.
- Extends land use control into areas currently without zoning, where unmanaged development could affect the transportation performance, appearance, or long-term development potential of the corridor.

In 2007, Fort Scott adopted zoning regulations that classify land into distinct areas and districts of land use. These regulations apply to property within the City and land outside the City within a designated “Growth Area”. This Growth Area extends south along US 69 approximately one mile south of the municipal limits. Because Bourbon County lacks zoning regulations, the City of Fort Scott can extend zoning control out to three miles beyond its city limits. The City must provide written notice of its intent to adopt zoning outside its limits to the Bourbon County Board of County Commissioners. By statute Bourbon

County can also extend zoning to all or any portion of its unincorporated area.

Process

Zoning should be adopted for the entire distance of the corridor using the following process:

- Fort Scott amends its current regulations to establish a US 69 overlay district, and applies the district within the corridor both inside the City and any portion of the corridor within three miles of the City’s limits.
- Bourbon County establishes base districts along the balance of the corridor, using the nearest applicable zoning designator in the Fort Scott ordinance. In most cases, this base will be an agricultural district. The county also adopts a US 69 overlay district consistent with that developed by Fort Scott, and applies the new zoning to the corridor within its jurisdiction.
- All zoning actions, including establishment of new districts, must provide notice to property owners and to the public, and include a public hearing followed by Planning Commission and City Commission action, consistent with Kansas statutes and the City administrative procedures.
- The City and the County execute an interlocal agreement with provisions that coordinate the administration and application of zoning along the corridor, as discussed earlier.

To establish limited area zoning outside of the Fort Scott Growth Area, the Bourbon County Board of County Commissioners must create a planning commission that studies and holds a public hearing on proposed regulations. The process may work most expeditiously if the county and city work together to draft a consistent corridor overlay district with modifications appropriate for the county, form a joint planning commission to manage the overlay, and use existing city staff for administration and enforcement.

Base and Overlay Districts. Traditional zoning ordinances such as Fort Scott’s include both base and overlay districts. Base districts identify permitted uses and development regulations for sites within the district, but generally do not reflect individual situations or contexts. Overlay districts modify or supplement base district regulations to respond to special conditions and requirements of



specific areas or types of projects. Fort Scott administers zoning and subdivision regulations within its jurisdiction, but it lacks some of the tools needed to implement the land use concepts of this plan. Bourbon County, without existing zoning, now exercises little land use control.

Bourbon County should apply base districts from Fort Scott's zoning ordinance to land along the US 69 corridor district in its jurisdiction. Most corridor land in the county jurisdiction will be placed in an agricultural district. Both city and county will then apply a consistent overlay district along the entire corridor, used in combination with the base districts.

The special overlay district regulations may address issues such as:

- Access control
- Signage
- Relationship of buildings to the highway
- Special setback requirements to preserve right-of-ways
- Building scale, form, and materials
- Visibility of loading docks and service areas
- Parking lot design and circulation.
- Site landscaping
- Pedestrian and bicycle access
- Impermeable surface limitations and storm drainage
- Procedures for special site plan or development review

Within the overlay district, standards may vary to reflect different contexts. The context analysis presented in Chapter Five included a discussion of the individual character of different parts of the study area. The overlay regulations and guidelines should reflect these dif-

ferences. For example, regulations appropriate in the pedestrian environment of Downtown or South National do not apply to the high-speed US 69 environment between Jayhawk and K-7.

Zoning Review and Approval. Once base and overlay districts are in place, the Fort Scott or joint city/county planning commission will review development and rezoning applications. This review should specifically consistency with the US 69 Corridor Management Plan, as adopted as a comprehensive plan element. If the reviewing staff determines that a project may have an adverse effect on the corridor, KDOT should receive a copy of the application, along with the staff report, for review and comment.

Planned Districts and Site Plan Review. Planned districts or common plans of development in Fort Scott and Bourbon County require submittal of information such as contemplated uses, proposed site terrain, location and type of infrastructure being proposed, building arrangement, architectural design and other features of development to the planning commission and governing body. The regulations may require this additional level of application detail for some or all project types developed within the US 69 overlay district.

In planned districts, the applicant submits two separate plans at different points in the approval process. The plan contains an increasing level of detail commensurate with the stage at which the property is in the development process. Initially, the applicant submits a preliminary development plan with an application for rezoning, but preliminary plan approval is a prerequisite for rezoning. The applicant then submits a final development plan for approval following completion of design drawings. This final plan must be approved before a building permit may be issued.

Site plan review process is an alternative to the planned development approval process. The applicant submits a specific site plan, which is then reviewed and acted upon, based on conformance with the design and performance guidelines of the overlay district and other zoning criteria.

In either a planned development or site plan review procedure, KDOT should review and comment on applications that staff determines may have an adverse effect on the corridor's transportation operation. This distribution should occur no later than notice of public hearing for the action. If the action does not require a hearing, KDOT should have enough time before action on the application to allow meaningful input.

Subdivision Regulations (City, County)

Subdivision regulations control the division land by requiring developments comply with set design standards and local procedures. They specify the improvements and construction standards required of developers. Subdivision regulations address such issues as efficient and orderly location of streets; reduction of vehicular congestion; reservation or dedication of land for open spaces; off-site and on-site public improvements; recreational facilities; flood protection; building lines; compatibility of design; storm water runoff; and other appropriate services, facilities and improvements.

In Bourbon County outside of Fort Scott's jurisdiction, subdivision regulations may be an alternative to zoning, although they are far less effective at guiding development patterns. Each plat would be submitted to the Board of County Commissioners, which determines if the plat conforms to the subdivision regulations. The Board notifies the owners of a finding of conformance and endorses its finding on the plat.



Dedications of land for public purposes must be accepted by the governing body before they take effect.

Building Permits (City, County)

Building permits are issued for the use or construction of any structure on a platted lot in areas governed by subdivision regulations. To receive a permit, buildings must conform to zoning requirements, providing an effective review and enforcement mechanism. If the city implements an impact fee program in the future, fees may be collected at the time of building permit application.

Transfer Of Development Rights (TDR) And Density Transfers (City, County)

Fort Scott and Bourbon County may establish a system of density incentives and transfers to promote effective use of property. Through TDRs, an owner may transfer all or part of the permitted density on one parcel to another parcel or to another portion of that same parcel, allowing a higher density on the site receiving the transfer than allowable by normal zoning. The transfer or removal of the right to develop or build is expressed by a density measure such as units per acre or floor area ratio (the gross area of a building divided by the area of a site). The TDR concept can encourage preservation of special site features or environmental resources on otherwise developable land.

Density Incentives (City, County)

This technique provides incentives for desirable, high-density development at specific sites, such as parcels near interchanges or at other points of maximum access. Commonly used incentives include streamlined development approvals, site design flexibility, density bonuses over normal zoning requirements, or targeted use of TIF or other financing incentives.

Cluster Development (City, County)

Cluster developments are a form of TDR, concentrating development at higher densities on a part of a site in exchange for maintaining open space or conservation uses on other parts of a parcel. Typically, the remaining land is used for recreation, common open space, or preservation of historically or environmentally sensitive areas. Cluster design is most often used for residential projects, and may apply to parts of the US 69 corridor.

Setback Ordinances (City, County)

It is essential that private developments do not encroach on right-of-way that will eventually be needed for highway and interchange improvements. One very effective way to preserve right-of-way and reduce future acquisition costs is adopting building and setback lines as part of a US 69 overlay district. Establishing these required setbacks will benefit from consultation with the Secretary of Transportation and KDOT staff, the Bourbon County engineer, and the Fort Scott Planning Commission. The setback ordinance should include an official map showing with survey accuracy the location and width of existing or proposed major streets or highways and any setback or building line. A building or setback line cannot be enforced until a certified copy of the map and any adopting ordinance or resolution is filed with the register of deeds of each county. This tool within the corridor is particularly important for the Bourbon County segment south of K-7.

Setback restrictions may be used in combination with other development tools, such as TDRs. For example, using this technique, an owner may be able to transfer development otherwise permitted in an exceptional setback area to other parts of the site, or even to a different location.

4(f) Uses (City, County, KDOT)

Federal statute places significant restrictions on the authority of the United States Secretary of Transportation to approve a transportation program requiring use of “4(f) properties” such as publicly-owned land, a public park, recreation area or wildlife refuges or land of a historic site. Because state transportation programs or projects often involve federal funds, the Secretary’s approval is commonly required. Accordingly, it is important that these uses not be located within the Corridor unless another viable option is unavailable. Thus, Fort Scott and Bourbon County must avoid locating or approving development applications seeking to establish 4(f) properties in the areas shown on the Plan footprint map as right-of-way for the mainline or of any portion of the local street network.

Variances (City, County)

Fort Scott and Bourbon County can grant variances from zoning regulations when normal requirements create a hardship because of special conditions, and a variance is not contrary to the public interest. The grant of a variance from district restrictions, such as parking and impervious surface requirements, may help an important development proposal proceed with minor modifications that meet corridor setback requirements. At the same time, the grant of some variances could negatively affect some plan recommendations. For example, a setback or site plan variance request could cause a traffic queue that could obstruct traffic movement on the highway.

In considering variances, the board of zoning appeals should consult the US 69 Corridor Management Plan, to determine whether the request complies with it as a comprehensive plan element. KDOT should also have the opportunity to review and comment on any request that staff believes may affect

plan implementation or the operation of the US 69 corridor.

Administrative Tools

Accessibility Of The Comprehensive Plan (City, County)

The comprehensive plan, including this corridor management plan, should be posted on the Fort Scott and Bourbon County websites and filed at other appropriate locations to inform all interested parties of recommendations for the US 69 study area.

Notice Of Applicability Of Plan (City, County)

To ensure transparency for all stakeholders, all plats approved by Fort Scott and Bourbon County should contain a statement, similar to the following, placed in the dedication section of each approved plat.

“The property shown on and described in this plat is and shall hereinafter perpetually be subject to that certain US 69 Corridor Management Plan, adopted by the Kansas Department of Transportation on _____, the City of _____, Kansas on _____, _____ and _____ County, Kansas on _____, _____, recorded in the Register of Deeds for _____ County, Kansas, in Book _____, at Page _____.”

Development applications should highlight the existence of special planning areas in the city or county, including the areas covered by the US 69 Corridor Management Plan. This could be handled informally by asking applicants of the property location or by inserting a line on all applications with a space to identify parcels covered by special plan areas. Entities or persons interested in developing at locations within the corridor may also become informed of the existence of the Plan as a result of the required filing of the Interlocal Cooperation Agreement in the Bourbon County register of deeds office.

Notice Of Opportunity To Provide Input (City, County, KDOT)

All parties with an interest in potential development along the corridor should have the opportunity to provide input development actions and proposals. Thus, Fort Scott and Bourbon County should provide KDOT with appropriate

notice of any development application (including rezoning and associated preliminary development plan applications, special or conditional use applications, site plan applications and preliminary plat applications and hearings on an amendment to that community’s comprehensive plan), that could have adverse effects on the corridor and its operations. In addition, KDOT should receive advance copies of all such proposed plan amendments or development applications and any related staff reports.

Notice Of Land Marketed For Sale (City, County, KDOT)

It is imperative that right-of-way necessary for the mainline highway improvements be acquired as soon as possible, making the ability to act quickly when opportunities arise extremely important. If KDOT is aware that strategic properties are available for purchase, it will be able to coordinate acquisition with Fort Scott and Bourbon County. Therefore, the city and county should develop methods of continuously monitoring land purchase opportunities in the corridor, and providing rapid information to KDOT.

Economic Incentive Policy (City, County)

Economic incentives can increase or extend resources available to pay for acquisition of land needed for transportation facilities, capital construction, and voluntary land dedications. Economic incentive options other than regulatory tools are described in the Financing Strategies section.

Acquisition Tools

Land Acquisition (City, County, KDOT)

Public sector entities can acquire land for public improvements, including state highways and local roads and streets by gift, purchase, or condemnation. All corridor partners must work closely and continuously to identify acquisition opportunities. Partners must also be committed to cooperating in the identifying traditional and innovative strategies for funding and acquisition.

Access Acquisition (City, County, KDOT)

Existing access points that are not consistent with the Access Management Plan (Chapter 8) can often be eliminat-

ed though the exercise of police power. Adjacent landowners must be left with “reasonable” access after the inconsistent access point is removed. A private property owner does not have a legal right to direct access to the highway or to a particular local street. Acquisition of access rights can be applied to:

- Limit access to designated locations or side streets;
- Control access and sight distance at intersections or interchanges;
- Introduce long term or permanent access control; and/or
- Control traffic and turning movements at locations where high numbers of conflicting movements occur.

In many cases, removing extraneous access points can benefit property owners and businesses by making sites more efficient, add parking, improve circulation, and remove safety hazards. The city and KDOT should consider providing site planning assistance to owners when accesses are closed through this process.

Land Dedication And In-Lieu Fees (City, County)

A critical goal of this plan is right-of-way preservation – the governmental partners must do everything possible to preserve and acquire land necessary to enhance the highway mainline and the adjacent local street network. Economic opportunity and excellent transportation performance are linked: a project that may produce small, short-term benefits to a single owner may well obstruct long-term transportation improvements that produce far greater benefits to both that owner and the entire community. New development within the corridor generates new traffic, and almost always adds to the need for facility improvements.

As a condition of development approval, Fort Scott and Bourbon County should require that new developments dedicate the right-of-way needed for network improvements, at least in proportion to the facility improvement needs that it generates. A carefully calculated system of fees in lieu of dedication also can be effective in providing resources necessary for the timely purchase of rights-of-way. Both the City and County should adopt a right-of-way dedication and/or in-lieu fee program to minimize acquisition outlays and accelerate implementation of this plan.

