

Sedgwick County
Sumner County

Kansas
Star
Casino



CATP

US-81/K-53 CASINO AREA TRANSPORTATION PLAN
February 2014



ACKNOWLEDGMENTS

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CHAPTER 1: INTRODUCTION

The Kansas Department of Transportation (KDOT) has partnered with the city of Mulvane, the city of Haysville, Sumner County, Sedgwick County, the Kansas Turnpike Authority (KTA), and the Wichita Area Metropolitan Planning Organization (WAMPO) to develop the US-81/K-53 Casino Area Transportation Plan (CATP). The CATP was developed using an open and involved planning process to assess the transportation impacts of expected development caused by the Kansas Star Casino and surrounding development.

PURPOSE

The purpose of the US-81/K-53 Casino Area Transportation Plan is to identify needed future transportation infrastructure improvements caused by ancillary development driven by the opening of the Kansas Star Casino. The CATP identifies the development potential for the area surrounding the Casino Complex, assesses transportation impacts from the anticipated development, and recommends short-term and long-term improvements to the transportation system. The recommendations include preserving and enhancing the safe, efficient operation of US-81 and K-53 over the next 30 years.

BACKGROUND

The historic development pattern of the Study Area will influence future development potential. The Study Area has historically experienced slow growth due to a mainly rural/agricultural setting, with slow conversion from agriculture to mainly low-density residential. However, the development of the Kansas Star Casino Complex has brought the potential for commercial growth to the Study Area and will likely change how the Study Area develops.

Study Area

The Study Area for the US-81/K-53 Casino Area Transportation Plan exists within Sedgwick County and Sumner County, Kansas and includes a portion of the city of Mulvane. The Study Area includes a six square mile area surrounding the Casino Complex bounded by Seneca St. on the west, Hillside Rd. on the east, 111th St. South on the north, and 140th St. North on the south. The Study Area also includes a small area surrounding the junction of US-81 and K-55. The CATP identifies development potential within these areas and assesses transportation impacts.

The Study Area also includes corridors which have been analyzed for transportation impacts only. The corridors include:

- 3 mile segment of the US-81/Broadway Ave. corridor from 87th St. South to 111th St. South in Sedgwick County
- 1 mile segment of the US-81/Broadway Ave. corridor from 140th St. North to 130th St. North in Sumner County
- 4 mile segment of the K-53 corridor from Hillside Rd. to K-15

The entire Study Area includes a total of 9.05 square miles (5,792 acres) and is shown in **Map A**.

Historic Development of the Study Area

Historical development in the southeastern area of Sedgwick County and the northeastern area of Sumner County has shown slow and steady growth. Urban and suburban type residential growth outward from the cities of Haysville, Mulvane, Derby, and Belle Plain has been the trend in and around the Study Area. The area has seen some conversion of agricultural lands to primarily residential urban and suburban type uses.

The development of the Casino Complex represents unprecedented commercial growth in the Study Area. Due to the massive change in the landscape, the historic development pattern is not expected to continue. Future development will be influenced by market demands from the Casino Complex as well as spin-off developments.

Casino Complex

The Kansas Star Casino is located eight miles south of the southern city limits of Wichita, five miles south of the southern city limits of Haysville, and five miles west of downtown Mulvane. The Casino Complex is located within the city of Mulvane between US-81/Broadway and I-35 and a half of a mile south of K-53 in Sumner County, Kansas. The city of Mulvane annexed the land for the Kansas Star Casino on January 10, 2008. The annexation included 1.375 square miles (880 acres) of land in both Sedgwick County and Sumner County.

The Kansas Star Casino is being developed in two phases to be completed by 2015. Phase One, which opened in December of 2011, was a temporary casino in the Event Center of the Casino Complex. This included 1,350 slot machines, 32 table games, a 50 seat snack bar, and several food and beverage kiosks. The second part of Phase One was to move gaming from the temporary casino in the Event Center to the permanent casino. The permanent casino opened in December of 2012 and includes a 250 seat buffet, a 115 seat steakhouse, a 40 seat food court, and a 150 room hotel. The Event Center was converted from the temporary casino to an actual Event Center, which is a 100,000 square foot, 3,000 seat indoor arena with the ability to hold 4,200 people for certain events.

Phase Two will include an additional 500 slot machines, 10 additional table games, a 5 table poker room, an outdoor 24-acre equestrian center with arenas and stalls, an RV park with 60 spaces, another 150 hotel rooms, and a sports bar. At full build-out, the Kansas Star Casino Complex will include 1,850 slot machines, 42 table games, 300 hotel rooms, 5 restaurants, an indoor Event Center, an outdoor equestrian center, and an RV park. The Casino Complex is expected to have an annual attendance of 2.7 million, 25% of which are expected to be tourists.

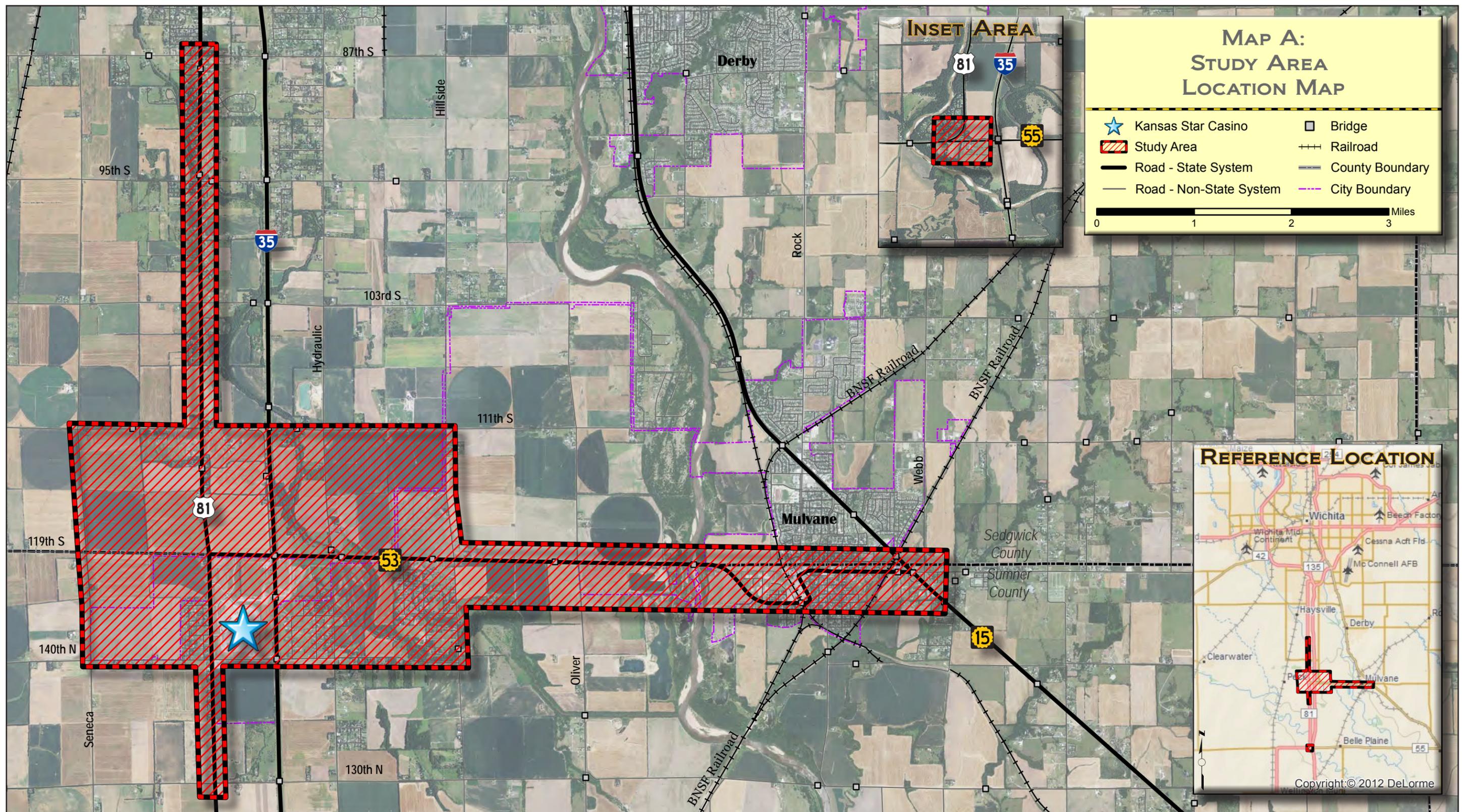
PUBLIC & STAKEHOLDER INVOLVEMENT

The involvement of the public and stakeholders was vital during the development of the CATP. From the existing conditions inventory to feedback on recommended improvements, all facets of this Plan were vetted through a project advisory committee. This committee included representatives of all partner agencies, KDOT, as well as interested parties. Along with the committee, a website was created and updated to disseminate information about the Plan and opportunities for input. A facebook page was also available as another online forum for discussion and comments. Local media was also involved through press releases and regular emails.

SUMMARY

The CATP utilized an open and involved planning process with many jurisdictions, agencies, stakeholders, and citizens involved in identifying needed transportation infrastructure improvements caused by the development of the Casino Complex and spin-off development. The historic development pattern of the Study Area, which has been a slow conversion of agricultural land to large-lot residential uses, is not expected to continue on the same course into the future. The Casino Complex represents a large commercial development that will impact the future development potential and travel patterns in the Study Area.

CHAPTER 1: INTRODUCTION



CHAPTER 2: PUBLIC INVOLVEMENT

The Casino Area Transportation Plan was developed through a coordinated and collaborative process that involved many stakeholders. From staff to elected officials to the public, the process utilized many resources representing many different agencies and interests. The process utilized several forms of electronic media to disseminate information and provide a forum for discussion and to obtain feedback.

PURPOSE OF PUBLIC INVOLVEMENT

The public involvement component is critical to the success of any planning initiative. It is not only important for conveying project information to area residents, but for gathering input from the public regarding a project and building an understanding of local issues. Successful public involvement begins with a true commitment to such an interactive communication process.

Some of the main objectives of community involvement are:

- Reassuring people that their opinions are of value to the planning process.
- Learning public perceptions and local knowledge of a project.
- Educating citizens on project alternatives and options.
- Gauging local response to potential alternatives and developing acceptable solutions.
- Identifying changes in public opinion and perceptions.
- Building consensus and local buy-in.

PUBLIC INVOLVEMENT APPROACH

The project's public involvement approach was centered on meaningful public and stakeholder participation. The process needed to identify transportation issues, build consensus, learn local preferences and create solutions to a variety of concerns. Also, choices needed to be provided for how people could share their thoughts. Many individuals are not comfortable speaking freely in a public meeting setting. Relying too heavily on meetings can limit the amount of valid, constructive insight received during the planning process. These needs are best served through a qualitative approach to public involvement.

Emphasis was placed on providing numerous options for providing information and receiving feedback rather than the number of meetings held. Throughout the process, several methods were used to engage stakeholders and area residents in the planning process:

- Integrated public/project advisory committee meetings
- Project outreach
- Targeted stakeholder coordination
- Public agency presentations

PROJECT ADVISORY COMMITTEE

The main role of the project advisory committee was to serve the interests of each partner agency, the broader community and the region in project decision making. This required committee members to be in touch with the values, goals and concerns of those whom they represented and to have some degree of authority and accountability. Therefore, the group was primarily made up of partner agency officials and staff along with other interested stakeholders.



A total of four project advisory committee meetings were held during which the committee provided accurate background information for the Plan. The group also gave input on local needs and expectations while serving as a sounding board for the project team.

The public was invited to attend and participate in project advisory committee meetings rather than conducting separate forums. This integration was done mainly because the Study Area was relatively large with a diverse group of stakeholders. Meetings were advertised on the project website and through the email distribution list, which included members of the local media.

The meetings were held in central locations and advertised broadly, rather than conducting multiple meetings on the same topic in a number of locations. This allowed budgeted funds to be focused on the critical analyses while providing qualitative public involvement.

PROJECT OUTREACH

In addition to the previous points about the qualitative public involvement approach, it is impractical to think everyone can attend every project meeting. Taking these things into account, multiple formats were implemented for exchanging information with Study Area residents. A robust outreach and notification plan was conducted to keep the public well-informed of key findings, recommendations, general project status and upcoming events/meetings. Furthermore, several forums were available to receive questions, comments and other input.

A contact database of interested parties and organizations was maintained for the distribution of meeting notifications. Project information was shared with the local press. This included meeting announcements and status updates. Also, area broadcast media ran at least two stories on the plan. Presentations to advisory boards were aired on local government cable outlets where the programming is made available.

The outreach strategy for online communications provided a means for not only giving information, but receiving input. A project website (8153catp.com) was developed and updated periodically throughout the planning process with pertinent information. The website provided:

- Information and updates about the CATP
- News and press releases about the CATP
- Upcoming events
- A Google map of the Study Area with project content
- Contact information
- Links to the CATP facebook page
- Links to partner agency websites
- Project presentations
- Information about specific improvement recommendations, such as roundabouts

Additionally, the website was developed with an active blog interface. This allowed site visitors to post comments directly to content pages on the website. A facebook page was used to receive feedback, get out the word, post hyperlinks and link to the more substantive content of the project website. This outreach strategy allowed anyone convenient 24/7 access to project information and multiple tools for sharing input.

TARGETED STAKEHOLDER COORDINATION

Throughout the process, coordination took place with key stakeholders to obtain targeted information and feedback. These issue-specific discussions provided for a more comprehensive and detailed look at the Study Area as

well as potential opportunities and challenges. Targeted coordination took place with the following stakeholders:

- Study Area businesses
- Kansas Star Casino representatives
- Economic development focus group
- Farming community
- WAMPO
- City of Mulvane
- City of Haysville
- City of Derby
- Sedgwick County
- Sumner County
- Wichita-Sedgwick County Metropolitan Area Planning Department
- Kansas Turnpike Authority

FEEDBACK ON DRAFT PLAN

The first draft was posted on the CATP website for public review on June 27, 2013 and presented to the project advisory committee that afternoon. The following is a summary of revisions incorporated into the final draft Plan based on input received during the comment period:

- The document cover page was finalized and added.
- Public Involvement chapter was drafted when engagement activities were substantially complete and added to the document.
- Additional options were provided for several recommended improvement locations where alternative solutions would perform acceptably.
- Planning-level cost estimates were added for each recommended improvement.
- Concept drawings of the recommended improvements were finalized and the Concept Improvement Plan was added to illustrate the recommendations.
- Several aspects of the analyses were revised to clarify meaning.
- Revisions were made to the “Other Recommendations” to provide better guidance regarding the Mulvane Alternative Route project.
- Recommendations for bicycle/pedestrian facilities and public transit services were added to the “Other Recommendations” section.
- Capital improvement programming was added to the Implementation Toolbox.

PUBLIC AGENCY PRESENTATIONS

Each of the partner agencies is a public entity with governing bodies and advisory boards playing decision-making roles. They will oversee much of the local implementation efforts. Keeping them informed is a critical aspect of ensuring project success. The feedback of these key decision makers also helps to refine project recommendations.

Presentations on the final draft CATP were offered to these groups through their representatives on the project advisory committee and several agencies accepted the offer. The project team presented the final draft Plan to the following groups on the indicated dates:

- WAMPO’s Transportation Policy Body (July 9, 2013)
- WAMPO’s Technical Advisory Committee (July 22, 2013)
- Haysville Planning Commission (July 25, 2013)
- Sumner County Commission (August 13, 2013)
- Belle Plaine City Council (September 5, 2013)

Each presentation included opportunities to ask questions and provide comments. The groups were also encouraged to review the final draft CATP and contact the project team with any additional comments, questions or concerns.

CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS

The Study Area includes various land developments, utilities, services, resources, and environmental characteristics. This chapter summarizes the existing land uses and development, utilities and services, historic resources, and environmental conditions. In addition to supplementing development approval, this information offers a preliminary review of National Environmental Protection Act (NEPA) considerations.

EXISTING LAND USE & DEVELOPMENT

The Study Area is mainly rural in nature with the majority (63%) of land being classified for agricultural purposes. However, the Study Area includes other land uses typical of transitional development areas. Historically, the development has occurred due to the proximity of the Study Area to several cities (downtown Mulvane, Haysville, Derby, Belle Plaine, and Wichita), as well as the access provided by the road network. The Casino Complex represents a change in development pattern, which has the potential to change the landscape of land uses in the Study Area.

The Study Area includes land area in and around downtown Mulvane, which contains much of the residential development. This residential area has higher density developments on smaller lots. Another part of the Study Area that has somewhat higher density residential development is the area north of 103rd St. South along US-81. There are residential uses along US-81 north of 103rd St. South as well as just northwest of the junction of US-81 and K-55. There are also residential developments closer to the Casino Complex. Most of these developments include lower density housing on larger lots. Many of the large-lot residential developments are located in Sumner County east of the Casino Complex, and one small development west of the Complex.

The Casino Complex has added a large commercial development to the Study Area, which has changed the existing development pattern from what would be expected from the historical development pattern. Most commercial land uses are outside of the Study Area approximately five miles from the Casino Complex in Haysville north of 79th St. North or Mulvane at K-15. The Study Area contains only small areas of commercial/office land uses, one of which is the Casino Complex. Other areas of commercial/office are just north of the Casino Complex, north of 103rd St. South along US-81, and near K-53 and Rock Rd. in downtown Mulvane. There are some manufacturing/industrial land uses and very small tracts of warehouse/distribution uses within the Study Area east of the Casino Complex along K-53 east of Oliver Rd. In total, 5.4% of the Study Area is dedicated to commercial, industrial, and warehousing.

Government and Institutional uses are located in downtown Mulvane at the far eastern reaches of the Study Area and include school district offices, a middle school, Cowley College, the Mulvane Emergency Services building, places of worship, a nursing facility, and Mulvane City Hall.

There are a few park/recreation land uses in the Study Area. There is the Polo Ranch (Great Plains Equestrian Sports) on US-81 north of 95th St. South. There are also four parks, a rodeo arena, and the Cobb Family Historic Park along K-53 near downtown Mulvane.

Shown in **Table 1** is the land area for each major land use category as well as the percent of the total land area in each land use category within the Study Area. **Map B** shows images of development at major intersections and developments within the Study Area. **Map C** shows the existing land use within and surrounding the Study Area.

Table 1: Existing Land Use (2012)

Existing Land Use (2012)	Acres	Sq. Miles	% of Study Area
Agricultural	3,650	5.70	63.0%
Residential	840	1.31	14.5%
Commercial/Office	260	0.41	4.5%
Manufacturing/Industrial	38	0.06	0.7%
Warehouse/Distribution	12	0.02	0.2%
Government/Institution	66	0.10	1.1%
Park/Recreation	48	0.07	0.8%
Open Space/Vacant	217	0.34	3.7%
Utility Infrastructure	71	0.11	1.2%
Right-of-Way	590	0.92	10.2%
TOTAL	5,792	9.05	100%

EXISTING UTILITIES & SERVICES

Utilities and services provide many existing developments within the Study Area with water, sewer, electricity, and natural gas. The extents and capacities of these systems will impact where development can occur and the intensity of development. These services most likely can be extended and capacities can be increased, but it will come with a cost.

Potable Water

Mulvane receives potable water through a contract with Augusta, Kansas to receive up to 200 million gallons per year. The current water tower is located at 111th St. and Rock Rd., which is 120 feet tall. To enable sufficient potable water for Mulvane citizens in the future may require alternative sources and increasing the size of pipes.

There are currently two existing water lines under the Arkansas River to serve the area west of the Arkansas River. A new water tower will be constructed at the northeast corner of K-53 and Oliver Rd. as well as a new water treatment facility to treat Mulvane's well water. Other improvements to the water system are recommended to improve water quality and future capacity. The new improvements may open up the area west of the Arkansas River for more development with potable water being available.

Besides for the Study Area within Mulvane, there are no water providers, such as rural water districts, in the Study Area. The closest water providers are the city of Haysville north of 87th Street North, Sedgwick County Rural Water District 3 east of Mulvane, and Sumner County Rural Water District west of Meridian. If developments are unable to receive water from Mulvane or possibly Haysville on the northern portion of the Study Area along US-81, they must be able to access water via private well.

Sanitary Sewer

The wastewater treatment plant for Mulvane is located southwest of Mulvane near the Arkansas River. It has a maximum daily flow of 0.63 million gallons per day, which has the population equivalent of 10,000 people. This is more than sufficient to handle expected growth of the city of Mulvane based on the Comprehensive Plan. However, there are some issues that are identified in the capacity of the sanitary sewer collection system. Mulvane and the Kansas Star Casino agreed to sewer line modifications to include 10 inch and 6 inch pressure force main lines to be extended along the south side of K-53 to the Casino Complex. These improvements will likely allow connections of future developments west of the Arkansas River. Other improvements are likely necessary to the sewer system as development occurs.

Electric

Mulvane distributes electricity to customers throughout the city via overhead and underground distribution lines. All power obtained from outside sources is delivered through a single interconnection with the Southwest Power Pool connected to the Westar El Paso substation. Mulvane also receives power from Nearman Generation Station Unit 1, the Southwestern Power Administration, and Westar. Mulvane also generates electricity at two city owned and operated power plants. In 2011, Mulvane began negotiating a contract with Westar to provide electricity to the Casino Complex. Future electric service for the Study Area, especially west of the Arkansas River, will need to be updated. Other improvements or extensions of the electric power system will likely be necessary as the Study Area develops. It is assumed that electricity will be made available to areas surrounding the Casino Complex to allow for future development.

Gas

Kansas Gas Service supplies natural gas to the Casino Complex from a main located at the northwest corner of US-81 and 140th St. North. Future extensions of service and connections will likely be necessary as development continues.

Public Safety

The Mulvane Public Safety building is located at 910 East Main St., seven road miles from the Casino Site, as shown on **Map C**. The Emergency Services building houses two of the three branches of the Mulvane Public Safety

CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS

Department; fire rescue and emergency medical services (EMS). The third branch is the police department, which is housed at 211 North Second St.

Mulvane police officers cover incorporated Mulvane and occasionally assist in unincorporated Sedgwick and Sumner Counties. Response time for police officers to reach the Casino Site is estimated to be seven minutes from the Emergency Services building.

Mulvane fire rescue covers incorporated Mulvane and also respond to fires on the Kansas Turnpike from milepost 33 to 26. Mulvane fire also covers a rural area known as Sumner County Fire District #12 to the east and south of Mulvane.

Mulvane Emergency Medical Service (EMS) covers incorporated Mulvane and an area along K-53 from Mulvane extending west to Ridge Rd. south to 126th St., east to the Arkansas River. They also cover a corridor on the Kansas Turnpike from US-53 to 70th Ave. North. Of the calls outside Mulvane, most were to Sumner County. Based on judgment of the Captain, 25-30% of EMS calls are from west of the railroad tracks. Drive time from the Public Safety Building to the Casino Site is about 11 minutes.

Increases in police call volumes from the Casino Complex should be marginal. Fire rescue calls are likely to increase on the portion of the Kansas Turnpike based on increased vehicular travel due to the Casino Complex. EMS calls from the Casino should not dictate any additional EMS staffing. However, it appears reasonable to acquire an extra ambulance to handle standby duties at the events held at the Casino. These conclusions are based on the Casino Site itself and not additional development that may occur. These developments may pose additional demand on public safety departments.

Of major concern to all departments is the delay in response time caused by train traffic. A new west substation would not eliminate train traffic conflicts for the volunteer fire department since volunteers still need to travel over railroad tracks to get to the substation.

As part of the Casino Development, a future EMS facility will be located at the Casino Complex along US-81. Also, an automatic aid agreement has also been approved with Sedgwick County Fire District No. 1, which includes the Kansas Star Casino Site.

Recreation

The Study Area contains six locations within the Study Area designated for recreational purposes. These include public parks and other recreation areas. **Table 2** identifies the park/recreation sites and locations and **Map C** shows the locations.

Table 2: Park & Recreation Sites

Name	Location
Polo Grounds	East side of US-81 between 87th St. S. and 95th St. S.
Rodeo Arena	West of BNSF and north of K-53
Cobb Family Historical Park	North of Main St. near Santa Fe Depot
Fairchild Park	Northeast of Blair St. and Swan Drive
Styx Creek West Park	Franklin St. and 4th Ave. N.
Main Street Park 1	Main St. and 4th Ave. N.

Schools

The Study Area is within Unified School Districts (USD) 263, 357, and small portions of 260 and 261. There are four school-related sites within the Study Area, which are shown in **Table 3** and **Map C**.

Table 3: School-Related Sites

Name	Location
Mulvane Grade School	411 S.E. Louis Drive
Mulvane District Office and Special Education	628 E. Mulvane St.
Cowley College	430 E. Main St.
Cowley College	201 Industrial Drive

HISTORIC RESOURCES

There are historical resources and landmarks within the Study Area. These resources are important to identify prior to development because projects within environs of historic resources require consideration of impacts on the resources. K.S.A. 75-2724: historic preservation officer be notified and given opportunity to comment upon any project which will “encroach upon, damage or destroy any historic property.” Similar provisions apply if a proposed project is within 500 feet of a historic structure within a city or within 1,000 feet if located in an unincorporated area (for listings on National Register of Historic Places or the State Register of Historic Places).

There are seven historically significant sites within the Study Area that are identified on the Kansas Historic Resources Inventory. None of these sites, however, are listed on the state or national register of historic places. **Table 4** and **Map C** identify the historic resources and their location.

Table 4: Historic Resources

Name	Location
Lenny C. Helbert House	322 N. 2nd St.
H.M. Maguire House	511 S. 4th St.
Mulvane State Bank	203 W. Main St.
H.L. Pegram House	202 W. Blair St.
Mulvane Santa Fe Depot	300 W. Main St.
Phillips 66 Service Station	211 S. 1st St.
Mulvane Old High School Gym	628 E. Mulvane St.

EXISTING ENVIRONMENTAL CONDITIONS

The natural environment of the Study Area, such as topography and wildlife, sets the stage for human development. Prior to assessing the development potential for the Study Area, the characteristics of the natural environment must first be inventoried. The inventory allows the assessment of how the natural environment will impact development potential, specifically in regards to potential locations of development. The inventory is also used when developing and assessing future transportation investment options.

Climate

The climate of the Study Area has wide temperature variations, abundant spring rainfall, high winds, and mainly clear skies. The Study Area is subject to abrupt weather changes. Annual average minimum and maximum temperatures are 45-46 degrees Fahrenheit and 68 degrees Fahrenheit respectively (based on data from DASC sourced from USDA/NRCS). Annual average precipitation from 1981-2010 has been between 34 and 35 inches per year (based on data from DASC sourced from Oregon State University and the Oregon Climate Service at Oregon State University).

Topography

The topography of the Study Area is relatively flat, ranging from 1,210 to 1,296 feet above sea level. The highest point is located in Mulvane near K-15. The lowest point is located at the Arkansas River just south of K-53. **Map D** shows the topography of the Study Area.

Water, Wetlands & Flood Zones

Lakes, rivers, streams, wetlands, and subsurface water all exist in the Study Area. The primary water features are the Arkansas River, the Cowskin Creek, and the Ninnescah River. There are also riverine areas surrounding the rivers and creeks, a few small lakes and ponds near the Arkansas River, and small areas of wetlands near the Arkansas River and Cowskin Creek. These areas represent undevelopable areas and often act as barriers to development. **Table 5** shows the types of water features and the area covered by each water feature type. **Map D** shows the location of water features within the Study Area. The wetland features are from National Wetland Inventory data and have not been formally delineated for this project. The location of features is

CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS

being shown to identify areas likely to contain wetlands or water features and will need particular consideration. Jurisdictional determinations for wetlands and waterways will be made as needed at the time of permitting.

Table 5: Water Features

Water Feature	Acres	Sq. Miles	% of Study Area
Lake	25	0.04	0.4%
Riverine	38	0.06	0.7%
Pond	7	0.01	0.1%
Emergent Wetland	1	0.00	0.0%
Forested/Shrub Wetland	30	0.05	0.5%
Other	0	0.00	0.0%
TOTAL	101	0.16	1.7%

There is a large area within the Study Area that is designated by the Federal Emergency Management Agency (FEMA) as 100-year flood zone. The area near the Arkansas River and the Cowskin Creek make up the majority of the flood zone. The area surrounding the US-81 and K-55 junction is entirely within the 100-year flood zone. The flood zones limit the development potential within the Study Area. For cases where construction occurs in the floodway, detailed analysis demonstrating the impacts of proposed construction will be required. **Map D** shows the 100-year flood zone within the Study Area.

Ground water can impact specific site development potential, especially where it is very close to the surface. The average depth to the water table is 20 feet or less from the surface in most of the Study Area. In many areas, it is much less. During particularly wet times, the water table can be around five feet from the surface. The draft Sedgwick County Quad Cities Joint Area Plan indicated that high groundwater in the area was a concern. **Map D** shows the average depth to the water table for areas in the Study Area.

Consideration of water features and wetlands is necessary in future development, especially when under the jurisdiction of the U.S. Army Corp of Engineers (USACE). Avoiding development in these areas is the preferred approach when development occurs. However, this approach is not always feasible and practical. Section 404 permits are required when placing fill in any water features or wetlands under the jurisdiction of the USACE. Construction or modification of bridges or culverts, or changes to the cross section of streams will require Stream Obstructions or Channel Changes permits from the Kansas Department of Agriculture, Division of Water Resources.

Watersheds

Watersheds are areas that drain to a common waterway, such as a lake, river, stream, drainage way, wetland, or aquifer. Watersheds function to direct storm water to a drainage way or water feature. The Study Area includes two watersheds; one drains to the Arkansas River and the other drains to the

Ninnescah River. Storm water runoff and drainage are major concerns within the Study Area and can impact development within the area. The Hydrologic Unit Codes and names for the watersheds are included in **Table 6** and the HUC 12 boundaries are shown in **Map D**.

Table 6: Hydrologic Unit Codes

HUC 8		HUC 10		HUC 12	
Name	#	Name	#	Name	#
Middle Arkansas-Slate	11030013	Mill Race Canal	1103001303	Spring Creek	110300130301
				Cowskin Creek Cutoff	110300130302
				Dog Creek	110300130303
				Outlet Cowskin Creek	110300130304
Ninnescah	11030016	Spring Creek	1103001602	Wattles Lake	110300160201
				Elm Creek	110300160202
				Dry Creek	110300160203

Farmlands

The Study Area includes soils that are designated as prime farmland and farmlands of statewide importance. Prime farmlands have the best characteristics for efficient agricultural productivity. Farmlands of statewide importance, which are designated by the states, are slightly less suited for agricultural production than prime farmlands. However, they may still produce high yields using acceptable farming practices.

The Study Area includes 5,436 acres of prime farmland located throughout the Study Area. The area surrounding the US-81 and K-55 junction includes a small area of prime farmland on the northern and northeastern border. The Study Area also includes about 30 acres of farmlands of statewide importance. Two small pockets of these farmlands are located on the far north of the Study Area near 87th St. South just west of US-81 and north of 119th St. South. **Table 7** shows the types of farmland, the acres per farmland type, and the percent of the Study Area each farmland type covers. **Map E** shows the designated prime farmland and the farmland of statewide importance within the Study Area.

Developing or constructing in prime farmland or farmland of statewide importance can impact the potential agricultural productivity. However, the Study Area is likely to incorporate much more non-agricultural uses that can increase economic productivity.

Table 7: Farmland

Farmland	Acres	Sq. Miles	% of Study Area
Prime Farmland	5,436	8.49	93.9%
Farmland of Statewide Importance	30	0.05	0.5%
Not Designated	326	0.51	5.6%
TOTAL	5,792	9.05	100%

Soils

There are 12 NRCS major soil texture types found in the Study Area. Soil types affect many aspects of the Study Area, from drainage and vegetation to the suitability of constructing buildings, bridges, and roads. **Table 8** shows the soil types, the acres per soil type, and the percent of the Study Area each soil type covers. **Map E** shows the soil types within the Study Area.

Table 8: Soil Types

Soil Type	Acres	Sq. Miles	% of Study Area
Sandy Loams	1628	2.54	28.1%
Clays	1204	1.88	20.8%
Sandy Clay Loams	810	1.27	14.0%
Clay Loams	511	0.80	8.8%
Loams	470	0.73	8.1%
Silt Loams	387	0.61	6.7%
Sands	344	0.54	5.9%
Silty Clays	280	0.44	4.8%
Water/Aquolls	73	0.11	1.3%
Silty Clay Loams	64	0.10	1.1%
Pits/Quarries	16	0.02	0.3%
Loamy Sands	6	0.01	0.1%
TOTAL	5,792	9.05	100%

The ten most prevalent specific soil types in the Study Area are:

- Canadian sandy loams (20.6%)
- Farnum sandy clay loams (14.0%)
- Complex/Undifferentiated soils (13.4%)
- Blanket clays (7.9%)
- Nalim loams (7.6%)
- Waurika clays (6.8%)
- Farnum sandy loams (6.2%)
- Tabler clays (5.9%)
- Brewer silty clays (4.8%)
- Lesho clay loams (4.7%)

CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS

These soil types have somewhat limited to very limited characteristics for dwellings and small commercial buildings, somewhat to very limited for local roads and streets, and most are somewhat to very limited for septic tank absorption fields and sewage lagoons (Tabler has no limitations on sewage lagoons). These soil-type limitations for construction and development can be mediated during development, but typically come at a higher cost for development and long-term maintenance.

Wildlife, Vegetation & Habitat

The Kansas Comprehensive Wildlife Conservation (KCWC) Plan of 2005 identifies that the Study Area is in the Central Mixed Grass Prairie Conservation Region. Some of the prevalent wildlife habitats in the Study Area are Herbaceous Wetland, Aquatic, Deciduous Floodplain, Cropland, Riparian Shrubland, and Urban Areas. Listings of wildlife and vegetation commonly inhabiting these habitats can be found in the KCWC Plan.

Loss, conversion, or fragmentation of habitat is likely to happen with development. However, southern Sedgwick County and northern Sumner County offer similar habitats for wildlife and vegetation. The loss of small areas of habitat due to development will likely have minimal impact on wildlife and vegetation. Wildlife accustomed to human-altered environments should continue to thrive. Transportation projects that would greatly fragment habitat should consider incorporating best practices for wildlife crossings or motorist warnings.

Threatened & Endangered Species

The Study Area likely contains habitat of threatened and endangered species. The Federal Endangered Species Act and the Kansas Nongame and Endangered Species Conservation Act protect habitats of the identified endangered and/or threatened species. The US Fish and Wildlife Service and the Kansas Department of Wildlife, Parks, and Tourism compile a list of threatened and endangered species and identify areas where they are, or have been found.

Areas known to have current self-sustaining populations of these species are called Designated Critical Habitat (DCH). There are a few species that have DCH in the Study Area. There are also species that are historically known to live in the Study Area, but may not have been seen there recently. There are 14 of species that have DCH or have known historic ranges in Sedgwick and/or Sumner Counties. Developments and transportation projects that will impact listed species or their known habitat require coordination with federal and state agencies and require appropriate measures to avoid or mitigate negative impacts.

Air Quality

The Study Area falls within the Wichita Metropolitan Statistical Area (MSA). The MSA is monitored by the Environmental Protection Agency and the Kansas Department of Health and Environment for six criteria pollutants. Currently, the MSA is in attainment, meaning the area does not violate federal standards for air pollution. However, the region is close to violating the standard for ground level ozone, which would likely cause the area to be designated as a non-attainment area. The non-attainment designation may affect the development potential, the types of development that occur, how development occurs, and the transportation improvements that can be made within the Study Area.

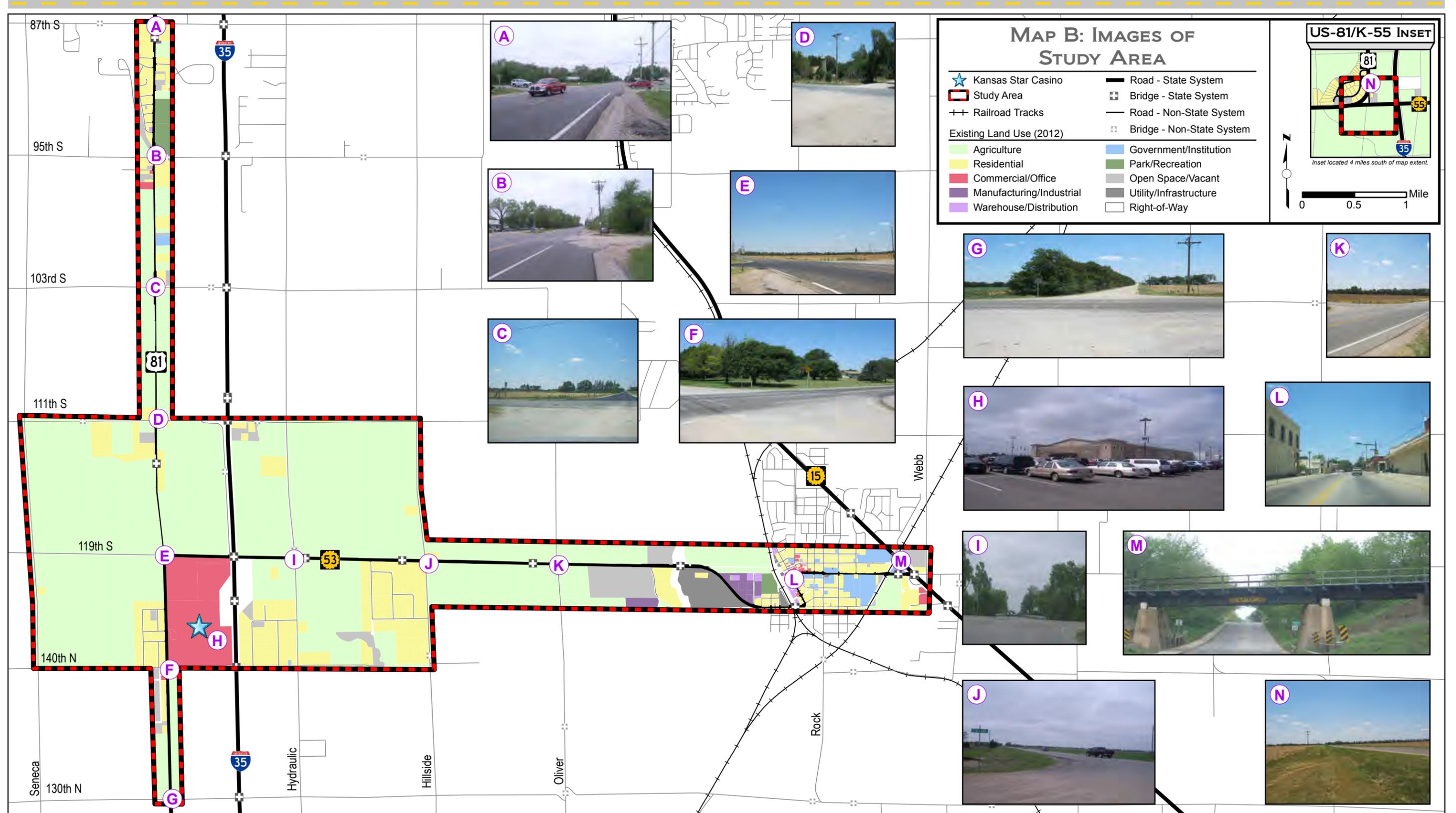
SUMMARY

The existing land use and development show a primarily agricultural area with some residential areas distributed throughout the Study Area. There are few commercial, industrial, or manufacturing uses within the Study Area. The Casino Complex has changed the landscape, but has not yet spurred much development beyond the complex. However, spin-off development is expected to occur and will likely entail the conversion of agricultural uses to commercial development.

The existing utilities and services have been or will be improved to provide the Casino Complex with needed utilities and services. Much of the improvements include expanding capacity to the west side of the Arkansas River. Future expansion of the water, wastewater, and electric system will likely need to be expanded as growth continues on the west side of the Arkansas River.

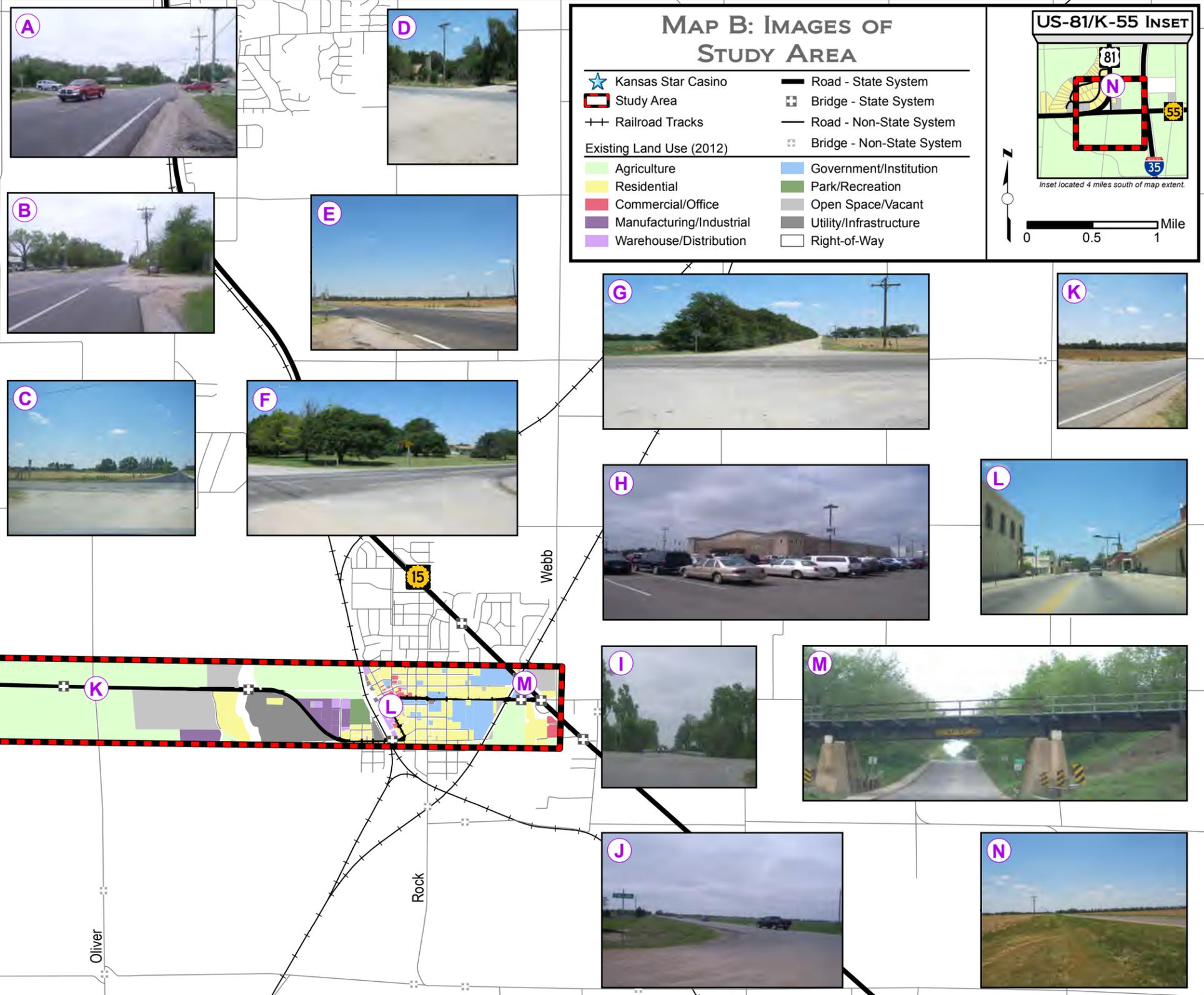
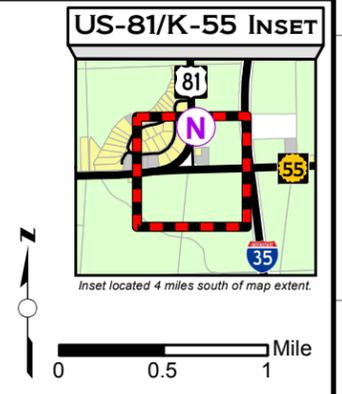
There are natural environmental elements and historic resources in the Study Area that may affect how the Study Area will develop. These elements will impact and potentially hinder development in some areas. They may also require mitigation of impacts on environmental elements. The elements will also impact how transportation improvements are made within the Study Area. Certain processes must be followed within the environs of these environmental and historic resources.

CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS

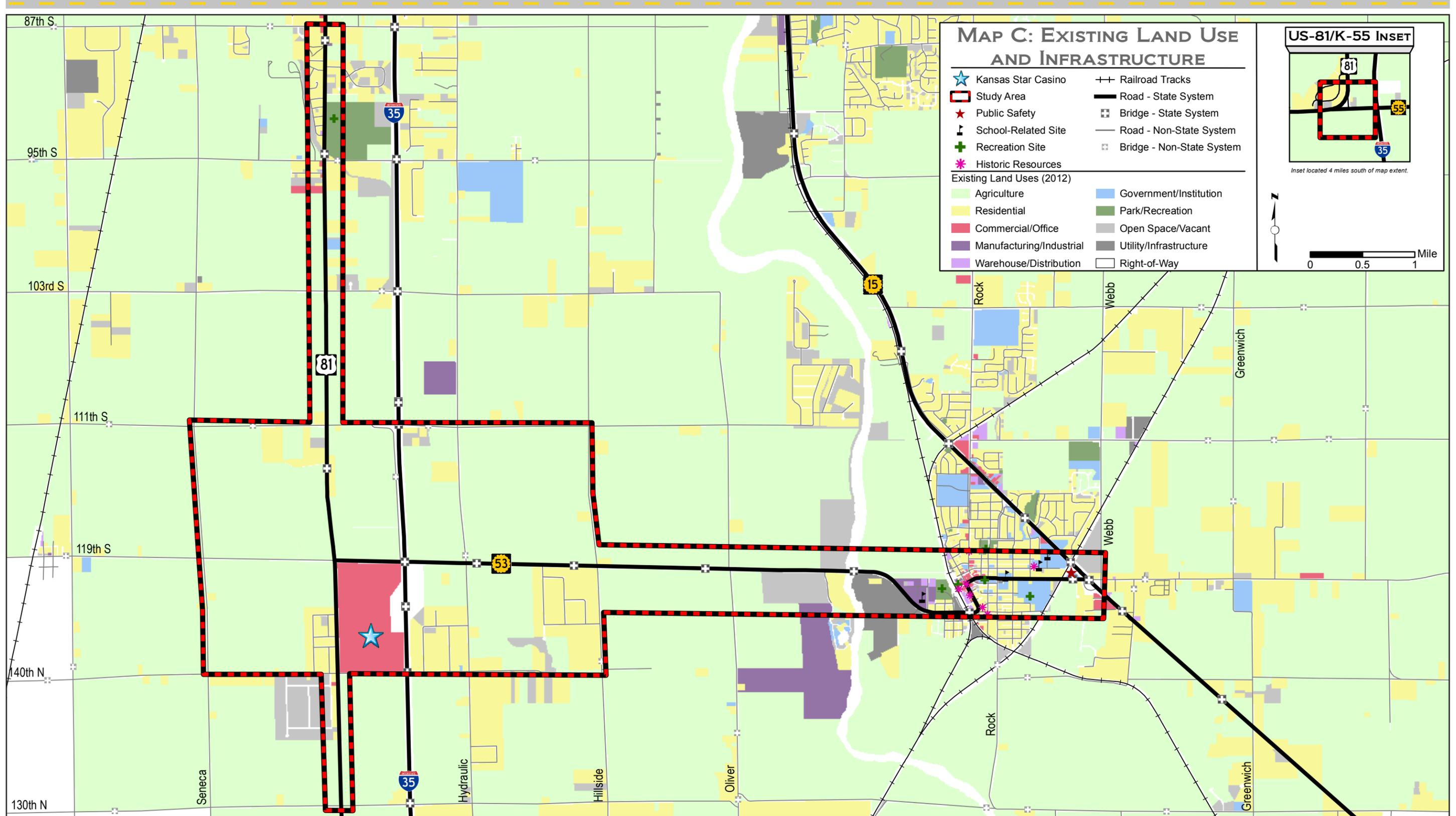


MAP B: IMAGES OF STUDY AREA

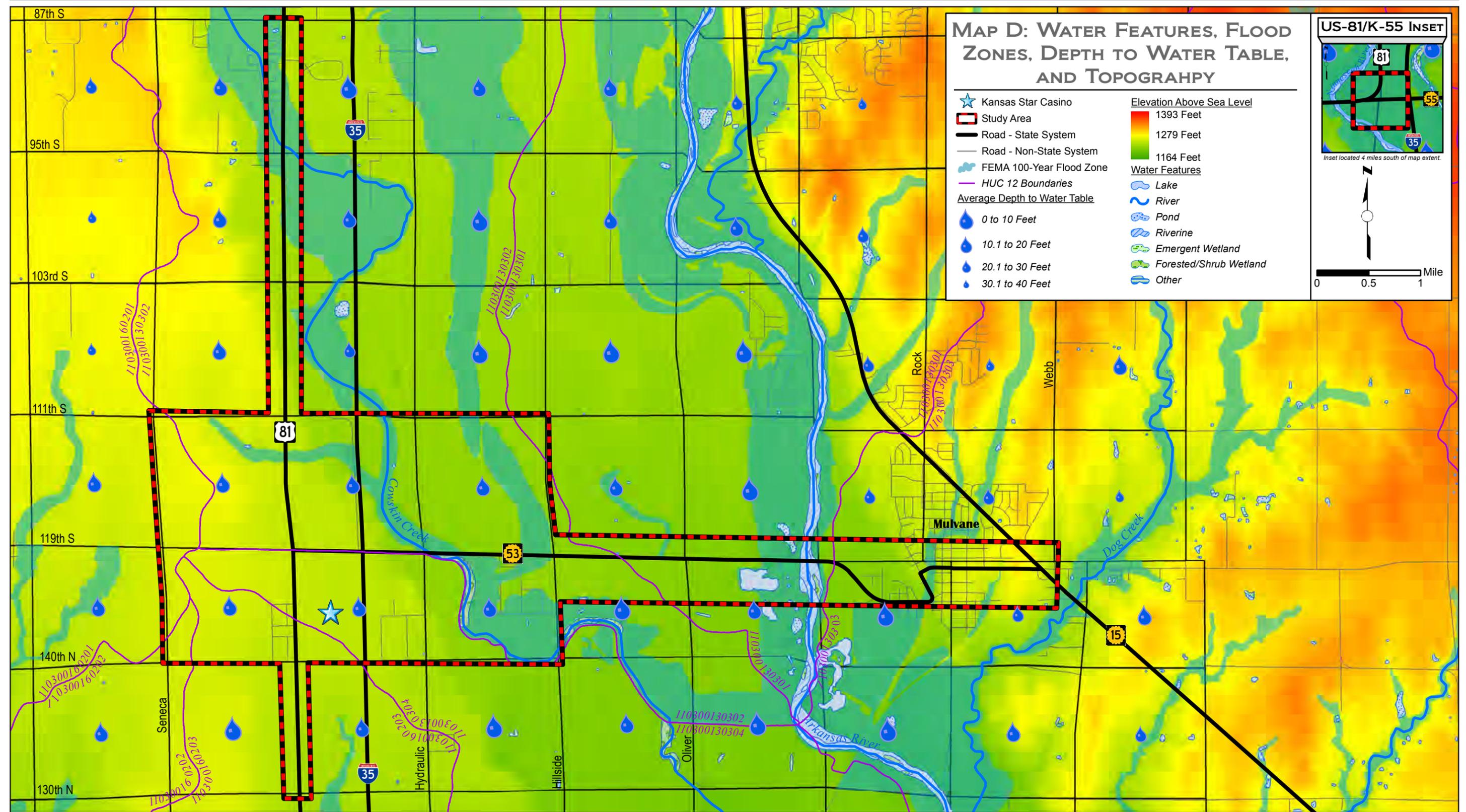
- Kansas Star Casino
 - Study Area
 - Railroad Tracks
 - Road - State System
 - Bridge - State System
 - Road - Non-State System
 - Bridge - Non-State System
- Existing Land Use (2012)
- Agriculture
 - Residential
 - Commercial/Office
 - Manufacturing/Industrial
 - Warehouse/Distribution
 - Government/Institution
 - Park/Recreation
 - Open Space/Vacant
 - Utility/Infrastructure
 - Right-of-Way



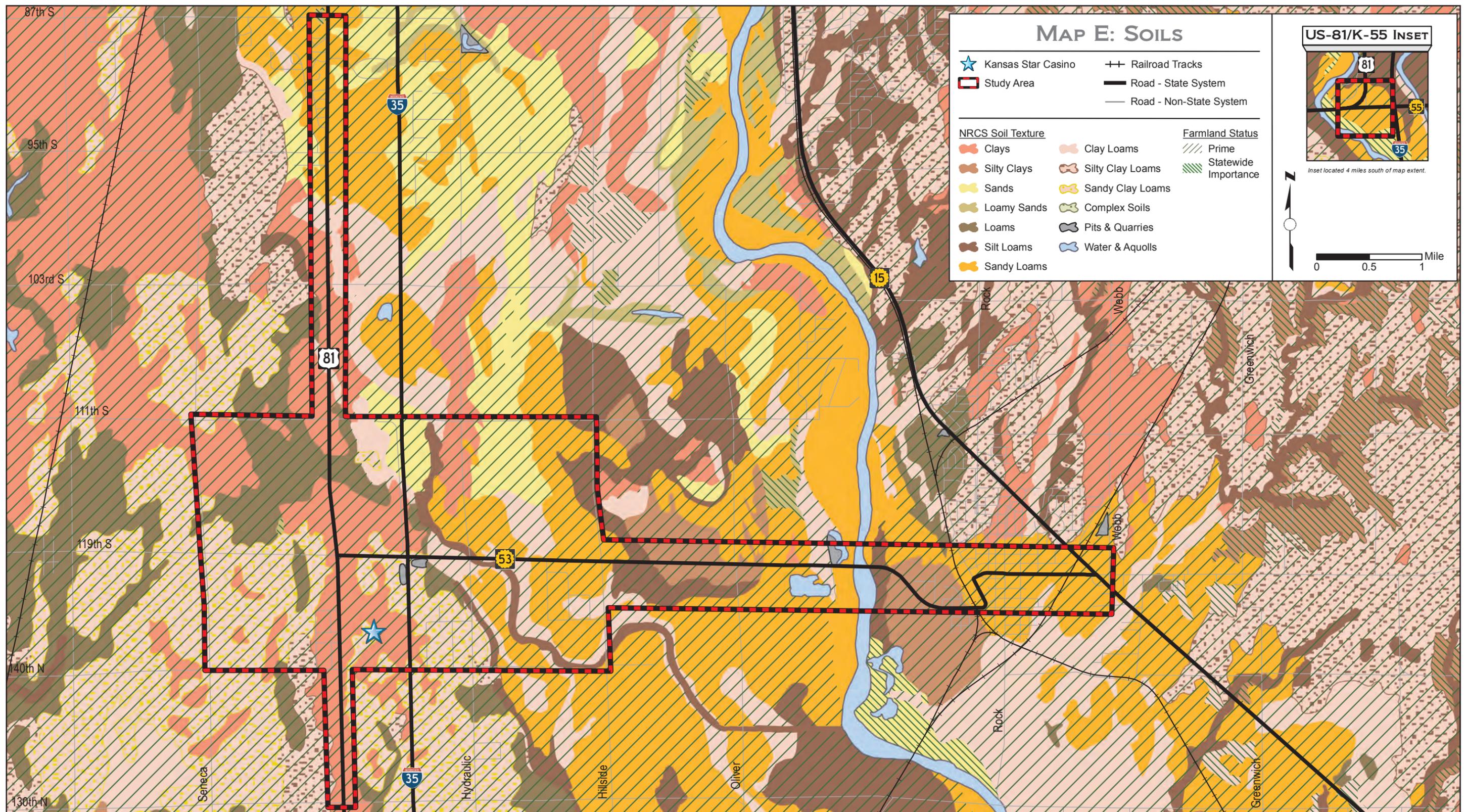
CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS



CHAPTER 3: EXISTING DEVELOPMENT & ENVIRONMENTAL CONDITIONS



CHAPTER 3: EXISTING DEVELOPMENT AND ENVIRONMENTAL CONDITIONS



CHAPTER 4: FUTURE AREA DEVELOPMENT

The Kansas Star Casino development has spurred discussions about the potential growth in and around the Study Area and how the new growth will impact the transportation system. Analyzing future development and its impacts on the transportation system will aid in identifying needed transportation improvements in the Study Area.

DEVELOPMENT ANALYSIS

Prior to the development of the Casino Complex, the Study Area was mainly agricultural with some residential areas. The Casino Complex is expected to directly cause much of the increase in demand for residential and commercial uses. In addition, spin-off development caused by the Casino Complex is projected to increase demand for commercial and light industrial development and slightly increase the demand for residential development.

A separate study was developed for the CATP to analyze the future demand for certain types of development caused by the Casino Complex, including the attached Equine Center. The CATP used the data and conclusions of the Demographic, Economic, and Market Analysis (see [Appendix 2](#)) to determine the type and degree of development likely to occur and how it would impact the transportation system. It should be noted that during the planning process casino management expanded the use of the equine auditorium space to include concerts. Concert attendance should not differ significantly from the anticipated use. However, the analyses were completed before the decision was made. Differences in target audience, peak travel demand, ingress/egress patterns, etc. were unable to be factored into the study.

Population & Housing

The Casino market area added 653 residents from 1990 to 2010, showing an annual growth rate of 0.78%. Population within the market area is expected to increase, which will increase the demand for housing units. However, the Casino Complex and spin-off development is not expected to dramatically change residential market forces. The Casino Complex is projected to increase the total number of housing units in the market area from 1,710 in 2012 to 1,952 in 2040, showing an increase of 242 new housing units. Spin-off development will generate demand for an additional 20-27 households. Combining housing demand from the Casino Complex and spin-off development, the market area is projected to add 262 to 269 new households.

Commercial & Light Industrial

Based on literature and comparable locations, the Kansas Star Casino is not expected to spin-off significant land use development outside the Casino Complex. Uses that typically follow casino development are designed to intercept the casino patron traffic, such as gasoline service stations, fast food restaurants, convenience stores, and limited service hotels. The Casino

Complex has the potential to spur other developments based on the inclusion of the Equine Center. The Equine Center would act similar to other family-oriented activities at other casino complexes and could spur the demand for family-style restaurants and some retail development.

The market area is not a natural location for retail development since there is not a concentration of households and significant residential growth is not projected. However, the Casino Complex and I-35 provide the market area with the potential for growth in retail development based on increased traffic. Interchange-style retail developments, such as truck stops, are most likely over the next 30 years with a limited amount of service retail. The retail development is likely to occur along US-81 north of the Casino Complex.

Hotels typically locate near sales and traffic generators such as interchange locations, business centers, or a major traffic generator similar to the Casino Complex. The current 150-room hotel at the Casino Complex, as well as another 150 rooms planned, will nearly meet the anticipated demand for hotel rooms from the Casino Complex. By 2040, there is the potential demand for a 65 to 90-room limited service hotel in the market area targeted to Interstate traffic and the Casino Complex's activities, especially the Equine Center.

Light industrial development is likely to occur on US-81 north of the Casino Complex due to increased traffic from the Casino. Land here is relatively inexpensive but lacks utilities south of 79th St. North. However, given the market visibility on US-81, the market will likely support a light industrial development totaling 20,000 to 40,000 square feet supporting 20 to 40 employees.

Jobs

The number of jobs at the Casino Complex is expected to increase from 601 in 2012 to 870 in 2040. The number of jobs is also expected to grow for the entire market area. The Casino Complex is projected to increase the total number of jobs in the market area from 820 in 2012 to 1137 in 2040, showing an increase of 317 new jobs. Spin-off development spurred by the Casino Complex will generate demand for an additional 150 to 213 jobs. Combining Casino Complex and spin-off demand, the market area is projected to add 467 to 530 new jobs by 2040. [Table 9](#) shows the total jobs in 2012 within the market area and the projected number of jobs by 2040. The new jobs are expected to be at the Casino Complex with some of the new jobs in the Sedgwick County portion of the market area.

Table 9: Projected Retail & Non-Retail Job Growth

Job Type	2012	2040		
Retail	61	277	-	312
Non-Retail	759	1010	-	1038
Total	820	1287	-	1350

For the purposes of this Study, the market demand for development was assumed to be all within the Study Area. This essentially places all of the demand of the market area within the smaller Study Area. The type and degree of development identified by the development analysis was distributed into a future land use pattern set forth by other planning efforts that included the Study Area.

FUTURE LAND USE SCENARIO

The future land use scenario for the Study Area was based on other planning efforts, such as comprehensive and subarea plans. These plans provided the location of future land uses, with minor modifications based on the development analysis. The types of development, population, and number retail and non-retail jobs were distributed into the future land use scenario, which were then input into a travel demand model for traffic analysis (see [Chapter 6](#)). The future land uses are shown in [Table 10](#) and [Map F](#).

Table 10: Future Land Use

Land Use	Acres	Sq. Miles	% of Land Area
Agriculture	2900	4.53	50.1%
Residential	1038	1.62	17.9%
Commercial/Office	787	1.23	13.6%
Manufacturing/Industrial	124	0.19	2.1%
Warehouse/Distribution	1	0.00	0.0%
Government/Institution	66	0.10	1.1%
Park/Recreation	50	0.08	0.9%
Open Space/Vacant	153	0.24	2.6%
Utility/Infrastructure	86	0.13	1.5%
Right-of-Way	587	0.92	10.1%
TOTAL	5792	9.05	100%

The areas surrounding the Casino Complex, the junction of US-81 and K-53, and the junction of I-35 and K-53 are the most likely to develop commercial uses. The roadway network provides excellent access to these areas and commercial development would capitalize on the increased traffic generated by the Casino and Equine Center activities.

The areas shown to be developed in the future land use scenario offer a general idea of the location of different types of development. These locations are well suited for development due to the draw of Casino Complex and the access provided by the roads. However, there are existing conditions that may pose challenges for development in these areas.

The areas of commercial development will be limited by soil suitability and a high water table. Some of the area east of Hydraulic Rd. as well as the area north of K-53 west of Hydraulic will likely be impacted by the flood zone. Development in the floodway will require detailed analysis demonstrating the

impacts of the proposed construction. Wetlands south of K-53 and east of Hydraulic Rd. may impact development as well. Section 404 permits and mitigation may be required if fill will be placed in any wetlands.

The extension of potable water service and sanitary sewer to the west of the Arkansas River is expected to be able to serve new developments within the vicinity of the Casino Complex. Improvements in capacity and distribution of these systems will be necessary, but will likely be possible as the area develops. Electric service will likely be provided by Mulvane, but will require the city to update, improve, and/or extend the electric power system.

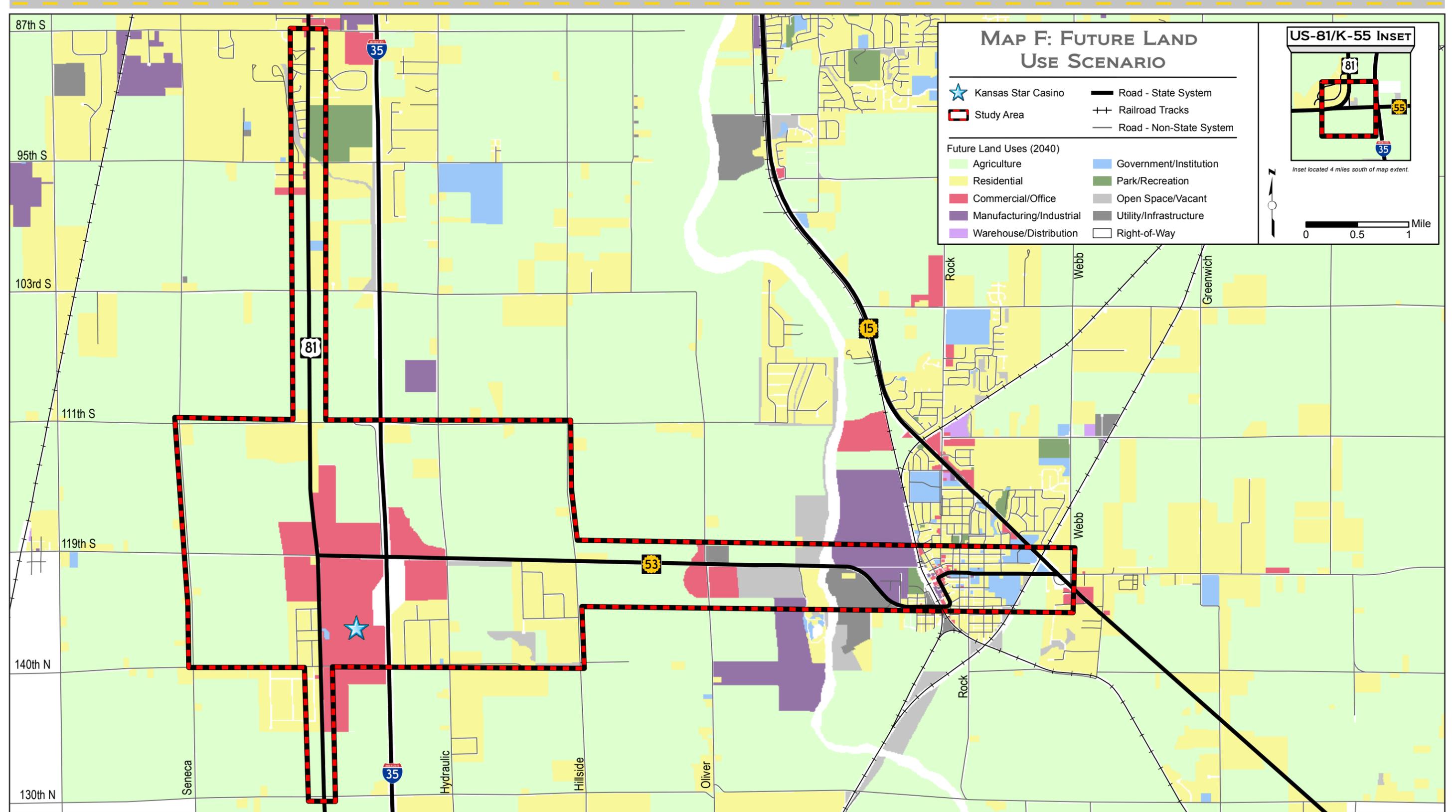
SUMMARY

A marginal increase in market demand for residential and light industrial is anticipated within the Study Area. The Casino and Equine Center (and possibly concert events) are expected to spur additional commercial development intended to intercept patron traffic. With the increase in industrial and commercial development, the number of jobs in the Study Area is expected to increase.

The roadway network provides good access within the Study Area and the increased traffic is expected to improve the commercial development potential. However, the future commercial development locations are not without their challenges. Poor soil suitability, flood zones, wetlands, water features, and a high water table may increase the cost of development and permitting may be required.

Another challenge will be extending services to developments. Potable water, sanitary sewer, and electric power will all need to be extended to the developments and improvements in capacity and distribution may be required. There have been investments in extending these services west of the Arkansas River and future capacity and distribution will likely be available for new developments.

CHAPTER 4: FUTURE AREA DEVELOPMENT



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CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

The Study Area includes various transportation infrastructure with specific operational characteristics. This chapter summarizes the existing transportation infrastructure, traffic operational characteristics, and roadway safety issues.

EXISTING TRANSPORTATION INFRASTRUCTURE

The transportation system currently provides vehicular travel options to access the Casino Complex, providing many opportunities for people and goods to be transported within and through the Study Area. There are many north/south and east/west arterials that provide regional and local access. The existing roads, bridges, railroads, airports, and bicycle and pedestrian facilities that are within or serve the Study Area are identified.

Streets & Highways

Interstate 35 (I-35) is the main north/south route through the Study Area, which is located just east of the Casino Complex. I-35 connects to Oklahoma and Texas to the south and Missouri, Iowa, and Minnesota to the north. I-35 is owned and operated by the Kansas Turnpike Authority (KTA) in the Study Area and is a tolled facility through the Study Area. This route provides the main connection to the Casino Complex, especially for visitors traveling longer distances. It also provides regional access from the Wichita Metro Area to the north. I-35 has two travel lanes in each direction through the Study Area at a posted speed of 75 miles per hour.

There is an interchange at mile marker 33 that provides almost direct access to the Casino Complex from northbound and southbound I-35. This interchange includes a toll plaza to access the Casino Complex as well as a toll plaza to access K-53 from I-35.

US-81 also provides north/south access to the Casino Complex, which carries more local trips. US-81 provides connections from Wichita and Haysville to the north to the Casino Complex. This route is located just west of the Casino Complex and includes three access points to the Casino Complex from US-81. US-81 is classified as a minor arterial through the Study Area and the area at the junction of US-81 and K-55. US-81 jogs to the west at the junction with K-55 before flowing north/south again four miles west of the junction.

K-53 flows east/west through the Study Area and functions similar to US-81, providing access for local traffic from areas to the west and east. K-53 connects the Casino Complex to Mulvane, located about five miles east of the Complex. There is one entry point on K-53 to access the Casino Complex. K-53 is classified as a minor arterial east of US-81 and a major collector west of US-81.

K-55 flows east/west six miles south of K-53, providing access east of US-81 into Cowley County. K-55 is classified as a minor arterial.

There are many north/south and east/west roads in the area, most of which are section line roads at 1-mile intervals. These roads provide access to the Casino Complex area and offer alternative routes for local trips beyond I-35, US-81, and K-53. The main roads and their classification are as follows:

- North/south
 - Seneca Street (local)
 - Hydraulic Road (major collector north of K-53, minor collector south of K-53)
 - Hillside Road (local)
 - Oliver Street (local north of K-53, major collector south of K-53)
 - Rock Road / North 2nd Avenue (minor arterial)
 - Webb (minor arterial)
- East/west
 - 87th Street South (minor arterial)
 - 95th Street South (minor arterial)
 - 103rd Street South (major collector west of US-81, local east of US-81)
 - 111th Street South (local)
 - 119th Street South (major collector west of US-81, designated as K-53 east of US-81)
 - 140th Street North (local)
 - 130th Street North (local)
 - 90th Avenue North (minor arterial)

Bridges

There are 21 bridge locations (23 bridge structures) in the Study Area. These bridges are at interchanges, over and underpasses of I-35/KTA and the railroad tracks, as well as bridges over waterways and drainage. The bridge locations include 17 state system bridges as well as six non-state system bridges. The Study Area also includes many culverts, which are not considered bridges. **Table 11** shows the bridges within the Study Area.

Railroads

There are a few railroad lines that pass through the far eastern portion of the Study Area near Mulvane. The Burlington Northern/Santa Fe owns two lines that pass through the eastern portion of the Study Area in Mulvane. One line runs northeast/southwest and the other runs northwest/southeast. The two lines converge just south of downtown Mulvane and the Study Area.

The closest passenger rail stop is located about 42 miles north of the Casino Complex in Newton, KS. The Southwest Chief route, which is operated by Amtrak, serves 33 stops from Los Angeles, CA to Chicago, IL. The route

Table 11: Bridges

	KDOT Bridge #	On	Dscrpt	At
State System	0087-B0466	US-81	over	Drainage south of 87th St. S.
	0087-B0157	US-81	over	Cowskin Creek
	0087-B0462	US-81	over	Drainage between 111th St. S. and K-53
	0087-B0219	111th St. S.	over	I-35
	0096-B0102	I-35	over	K-53
	0096-B0103	I-35	over	K-53
	0096-B0134	Casino Interchange	over	I-35
	0096-B0039	140th St. N.	over	I-35
	0096-B0128	K-53	over	Cowskin Creek
	0096-B0128	K-53	over	Drainage west of Hillside
	0096-B0106	K-53	over	Drainage west of Oliver
	0096-B0107	K-53	over	Arkansas River
	0096-B0108	K-53	over	Arkansas River Drainage
	0096-B0110	K-53	under	BNSF railroad
Non-State System	0087-B0433	K-15 Southbound	over	BNSF railroad
	0087-B0434	K-15 Northbound	over	BNSF railroad
	0096-B0141	K-15	over	K-53 / 119th St. N.
	N/A	95th St. S.	over	Cowskin Creek
	N/A	111th St. S.	over	Drainage between Seneca and US-81
	N/A	111th St. S.	over	Cowskin Creek
	N/A	Washington	over	Drainage between 111th St. S. and K-53
	N/A	Hydraulic	over	Cowskin Creek
N/A	Hillside	over	Cowskin Creek	

passes through California, Arizona, New Mexico, Colorado, Kansas, Missouri, Iowa, and Illinois.

Airports

There are no airports within the Study Area; however, Kendrigan Airport is located just outside the Study Area north of 130th Ave. North and east of I-35. This is a small privately owned airport and has little impact on future growth and development within the Study Area.

The major airport serving the area is Mid-Continent Airport located 20 miles northwest of the Casino Complex in Wichita, KS. There are currently five airlines that serve Mid-Continent with one more planned for June of 2013. These current airlines provide direct flights to eight major metropolitan areas, with one more planned for May of 2013.

CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

Another airport that serves the Casino Area is the Wellington Municipal Airport located twelve miles southwest of the Casino Complex on US-81. This public airport has general aircraft services in close proximity to the Casino Complex.

Bicycle & Pedestrian Facilities

There are no dedicated pedestrian or bicycle facilities that provide access to the Casino Complex. There are sidewalks in the eastern portion of the Study Area along K-53 east of Industrial Dr. and throughout downtown Mulvane.

EXISTING TRAFFIC OPERATIONS & SAFETY

Traffic operations and roadway safety are both important components in establishing how well any roadway system is performing and how well that system may be expected to perform in the future. The following section describes the types of analyses performed in this Study for existing conditions, the data inputs required, and the findings.

Traffic Operations

Capacity analyses were performed for the existing study intersections listed below using lane geometry and traffic control device information collected from the field.

- US-81 and 87th Street
- US-81 and 95th Street
- US-81 and 111th Street
- US-81 and K-53
- US-81 and Kansas Star Drive
- US-81 and 142nd Street
- US 81 and K-55
- K-53 and Kansas Star Drive
- K-53 and KTA Connector
- K-53 and Hillside Road
- K-53 and Blair Street
- K-53 and Southbound K-15 Ramp
- K-53 and Northbound K-15 Ramp

The study intersections were evaluated based on the methodologies outlined in the Highway Capacity Manual (HCM), 2010 Edition, published by the Transportation Research Board. The operating conditions at an intersection are graded by the “level of service” experienced by drivers. Level of service (LOS) describes the quality of traffic operating conditions and is rated from “A” to “F”. LOS A represents free-flow movement of traffic with minimal delays. LOS F generally indicates severely congested conditions with excessive delays

to motorists. Intermediate grades of B, C, D, and E reflect incremental increases in the average delay per stopped vehicle. Delay is measured in seconds per vehicle. **Table 12** shows the upper limit of delay associated with each level of service for signalized and unsignalized intersections.

Table 12: Intersection Level of Service Thresholds

Level of Service	Signalized	Unsignalized
A	< 10 Seconds	< 10 Seconds
B	< 20 Seconds	< 15 Seconds
C	< 35 Seconds	< 25 Seconds
D	< 55 Seconds	< 35 Seconds
E	< 80 Seconds	< 50 Seconds
F	≥ 80 Seconds	≥ 50 Seconds

A summary of the AM and PM peak hour capacity analyses of the study intersections under existing traffic conditions is provided in **Table 13**. As shown in the table, all study intersection movements are operating with minimal delays and very good LOS under existing conditions. The lane configurations, intersection control devices, and traffic volumes used in the analysis for each location are illustrated in **Exhibit 1** through **Exhibit 3**.

Road Safety

Road safety was assessed for the segments of the US-81 and K-53 corridors within the Study Area based on crash history data provided by KDOT for the years 2009 through 2011. Crash rates and critical crash rates were calculated for each roadway segment and intersection. Crash rates are typically considered better measures of risk than crash frequencies alone, since they account for differences in traffic flow. The critical crash rate is calculated to identify those crash rates that are significantly worse than average for specific roadway types and traffic volumes. More detailed study may be warranted for locations where the crash rate is calculated to be higher than the critical crash rate.

Summarized in **Tables 14** and **15** are the route and intersection crash characteristics identified for the US-81 corridor.

There were thirty five crashes along the US-81 corridor and nine at intersection locations within the

Table 13: Intersection Operational Analysis (2012)

Intersection	Movement	A.M. Peak Hour			P.M. Peak Hour		
		LOS*	Delay**	V/C***	LOS*	Delay**	V/C***
US-81 and 87th Street	Eastbound	B	10.7	0.04	B	11.3	0.03
	Westbound	A	9.4	0.01	B	11.0	0.01
	Northbound left-turn	A	0.1	0.00	A	0.0	0.00
	Southbound left-turn	A	0.2	0.00	A	0.1	0.00
US-81 and 95th Street	Eastbound	B	10.6	0.02	B	11.8	0.01
	Westbound	B	10.3	0.03	B	12.6	0.11
	Northbound left-turn	A	0.1	0.00	A	0.1	0.00
	Southbound left-turn	A	0.5	0.00	A	0.3	0.01
US-81 and 111th Street	Eastbound	B	10.1	0.00	B	11.5	0.01
	Westbound	A	9.2	0.01	A	0.0	0.00
	Northbound left-turn	A	0.0	0.00	A	0.0	0.00
	Southbound left-turn	A	0.0	0.00	A	0.1	0.00
US-81 and K-53	Eastbound	B	10.8	0.05	B	12.6	0.10
	Westbound	B	10.8	0.12	B	13.7	0.18
	Northbound left-turn	A	0.2	0.00	A	0.6	0.01
	Southbound left-turn	A	1.3	0.01	A	1.7	0.03
US-81 and Kansas Star Drive	Westbound	B	10.4	0.05	B	11.6	0.12
	Southbound left-turn	A	7.7	0.01	A	7.8	0.01
US-81 and 142nd Street	Eastbound	B	11.4	0.01	B	13.9	0.01
	Westbound	A	9.5	0.03	B	10.1	0.10
	Northbound left-turn	A	0.0	0.00	A	0.0	0.00
	Southbound left-turn	A	7.7	0.02	A	7.7	0.03
US-81 and K-55	Westbound	A	9.4	0.02	A	10.0	0.04
	Northbound	A	9.3	0.02	A	9.9	0.02
	Southbound left-turn	A	8.8	0.01	A	9.1	0.03
K-53 and Kansas Star Drive	Westbound left-turn	A	7.5	0.01	A	7.6	0.02
	Northbound	A	9.1	0.01	A	9.2	0.03
K-53 and KTA Connector	Westbound left-turn	A	5.6	0.12	A	2.9	0.04
	Northbound	A	9.0	0.06	B	10.4	0.22
K-53 and Hillside Road	Eastbound left-turn	A	1.8	0.01	A	0.9	0.02
	Westbound left-turn	A	0.1	0.00	A	0.5	0.01
	Northbound	B	11.3	0.10	B	12.5	0.06
	Southbound	B	10.1	0.05	B	12.7	0.23
K-53 and Blair Street	Westbound	A	9.7	0.02	B	10.9	0.02
	Southbound left-turn	A	0.1	0.00	A	0.8	0.01
K-53 and Southbound K-15 Ramp	Westbound left-turn	A	0.0	0.00	A	0.3	0.00
	Northbound	A	8.9	0.00	A	8.9	0.04
K-53 and Northbound K-15 Ramp	Eastbound left-turn	A	0.3	0.00	A	0.3	0.00
	Westbound left-turn	A	4.2	0.02	A	3.5	0.02
	Northbound	A	9.5	0.03	A	9.4	0.02
	Southbound	A	8.5	0.00	A	8.5	0.00

*Level of Service

**Delay in seconds per vehicle

CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

three-year study period. In general, the crash rates at twenty three intersections within the three distinct roadway segments along the US-81 corridor were relatively low compared to the critical crash rates calculated.

Table 14: US-81 Route Characteristics

From	To	Miles	MPH	Lanes	Edge of Travel*	ADT**	Total Crashes	Crash Rate***	Critical Rate***
K-55	140th Ave.	5.06	55	2	4	3,500	13	0.67	2.07
140th Ave.	K-53	0.85	55	2	4	3,900	4	1.1	2.41
K-53	87th Street	4.04	55	2	4	3,300	18	1.23	2.16

*Distance in feet from white edge line to edge of pavement

**Average Daily Traffic

***Crash rate per million vehicle miles traveled

Table 15: US-81 Intersection Characteristics

Intersection	ADT*	Total Crashes	Crash Rate**	Critical Rate**
US-81 and K-55	4,000	4	9.13	11.06
Brook St.	3,500	0	0	11.64
100th Ave.	3,500	0	0	11.64
110th Ave.	3,500	0	0	11.64
120th Ave.	3,500	0	0	11.64
130th Ave.	3,500	0	0	11.64
140th Ave.	3,500	1	2.61	11.64
142nd Ave.	4,000	0	0	11.06
143rd Ave.	4,000	0	0	11.06
144th Ave.	4,000	0	0	11.06
Kansas Star Drive	4,000	0	0	11.06
K-53	4,800	3	5.71	10.36
K-53 (5-years, 2007-2011)	4,800	8	9.13	8.76
11th St.	3,300	0	0	11.9
103rd St.	3,300	1	2.77	11.9
96th St.	3,300	0	0	11.9
95th St.	3,300	0	0	11.9
York Ln.	3,300	0	0	11.9
91st St.	3,300	0	0	11.9
Rhodes St.	3,300	0	0	11.9
Gordon Bennet Dr.	3,300	0	0	11.9
89th St.	3,300	0	0	11.9
87th St.	3,300	0	0	11.9

*Average Daily Traffic

**Crash rate per ten million entering vehicles

One location that did have a slightly higher crash rate of 9.13 than the critical rate of 8.76 is at the intersection of US-81 and K-53. Unlike all other intersections assessed, these crash rates are based on the number of crashes that have occurred within a five-year period from 2007 through 2011. There

were a total of eight crashes with five of them angle collisions. A review of the crash reports indicated that some of the drivers failed to stop at the posted stop signs. Although the number of crashes in this location is relatively low, an average of 1.6 per year, this location should be monitored for stop sign compliance and could be actively targeted by law enforcement officers as a special enforcement area with a zero tolerance policy for stop sign compliance.

Summarized in **Table 16** and **Table 17** are the route and intersection crash characteristics identified for the K-53 corridor.

Table 16: K-53 Route Characteristics

From	To	Miles	MPH	Lanes	Edge of Travel*	ADT**	Total Crashes	Crash Rate***	Critical Rate***
US-81	Oliver	3	55	2	4	3200	11	1.05	1.86
Oliver	Mulvane WCL	1.68	55	2	4	3450	0	0	2.08

*Distance in feet from white edge line to edge of pavement

**Average Daily Traffic

***Crash rate per million vehicle miles traveled

Table 17: K-53 Intersection Characteristics

Intersection	ADT*	Total Crashes	Crash Rate**	Critical Rate**
Kansas Star Dr.	2,600	0	0	13.1
Washington St.	2,600	0	0	13.1
KTA Ramp	3,600	1	2.54	11.51
Hydraulic Rd.	3,450	1	2.65	11.7
Easy Rd.	3,450	1	2.65	11.7
Hillside Rd.	3,450	0	0	11.7
Oliver Rd.	3,450	2	5.29	11.7
East St.	3,450	0	0	11.7
Estfan Rd.	3,450	0	0	11.7
146th Ave.	3,450	0	0	11.7
Industrial Dr.	3,450	0	0	11.7

*Average Daily Traffic

**Crash rate per ten million entering vehicles

There were a total of eleven crashes along the K-53 corridor and five at intersection locations within the three-year analysis period. All crash rates at intersections and within the various roadway segments were lower than the critical crash rates, indicating no significant crash risks. It is worth noting that there were six animal related crashes that occurred on K-53 between Hydraulic Rd. and Easy St. near a wooded area and a creek indicating a potential need for warning signage.

The railroad crossing 9406P at K-53 and BNSF tracks on the west side of Mulvane was also examined from a safety standpoint using the Hazard Index (HI). The Hazard Index is used by KDOT to objectively rate the relative hazard potential for all crossings and is based on highway traffic, train traffic, and existing warning devices. The HI formula is:

$$HI = (\text{Average Daily Traffic}) \times (\# \text{ trains per day at crossing}) \times (\text{Weighted factor}^*)$$

*Weighted factor for existing warning device (0.1 for flashing lights and gates; 0.6 for flashing lights; 1.0 for crossbucks)

All at-grade railroad crossings in the WAMPO area were analyzed in the summer of 2007 in the Railroad Crossing Plan. According to the plan, the HI in 2007 was 14,865 and had 29 trains/day and 5,126 veh/day traveling through it and was ranked 29th in the WAMPO area. Current Hazard Index is 12,075 and has 35 trains/day and 3,450 veh/day traveling through it. Variations in train and traffic volumes should be expected due to seasonal or other variations in train and vehicular traffic patterns at a given instance. The Hazard Index shown is a general indicator as to the relative safety of the crossing and is relative to the other crossings in the WAMPO area. Analyzing all of the other crossing in the WAMPO area is outside the purview of this project, but reviewing the old report the crossing would most likely remain in a similar rank today.

SUMMARY

The existing vehicular transportation infrastructure provides adequate mobility through the Study Area and access to the Casino Complex. The roadways and intersections are currently operating at LOS B or higher during the AM and PM peak hours. This shows that the current roadway network is not causing substantial vehicular delay under current vehicular traffic patterns.

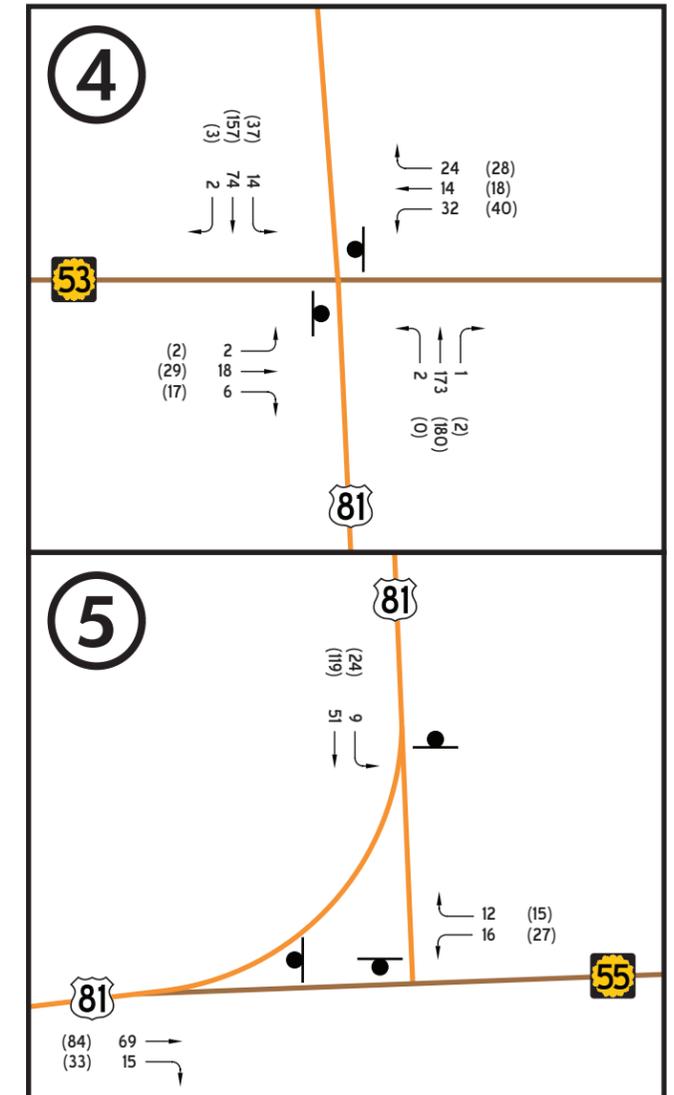
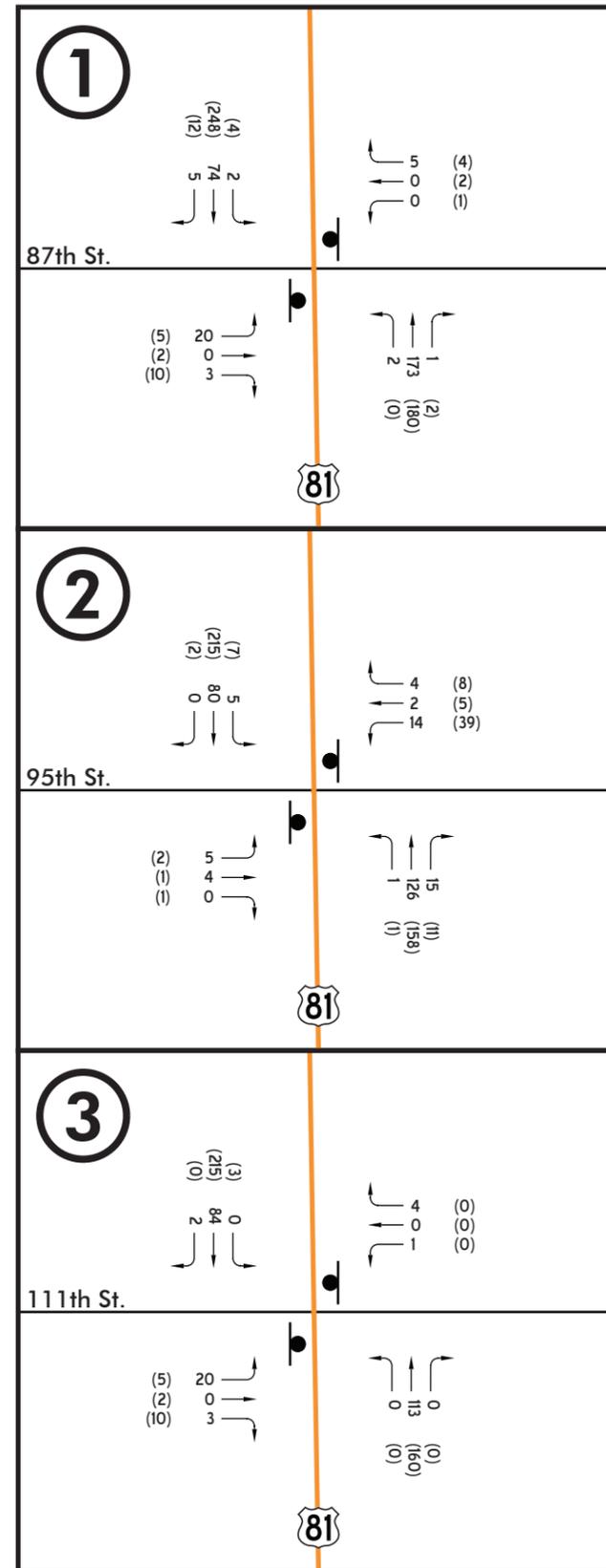
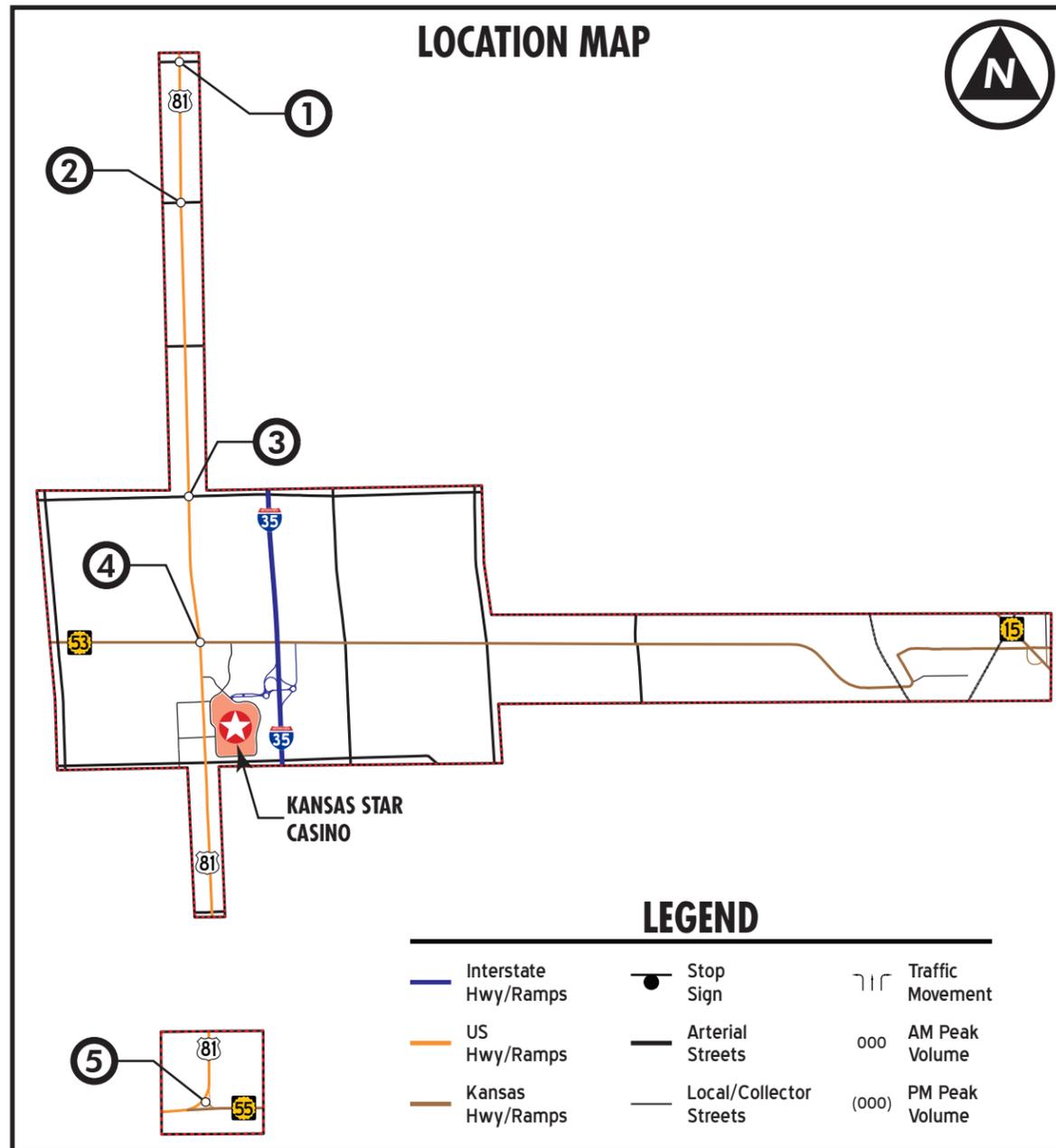
Safety on the roadways was considered and data shows most of the system is operating safely. There is only one intersection that appears to have a potential safety issue; US-81 and K-53 has a crash rate that is greater than the critical rate. Further study at this intersection is needed to assess safety concerns specific to this location.

Multimodal facilities are limited within the Study Area. However, there is access in near proximity to the Study Area via passenger rail and air travel. There are limited bicycle and pedestrian facilities in the Study Area, all of which are located in the far eastern portion. Due to the rural nature and sporadic developments, there is not a great demand for bicycle or pedestrian facilities.

The railroad tracks that cross the Study Area are an operational concern due to delays near at-grade intersections. The crossings also pose a safety concern, which can be evaluated using the Hazard Index. The crossing of the BNSF

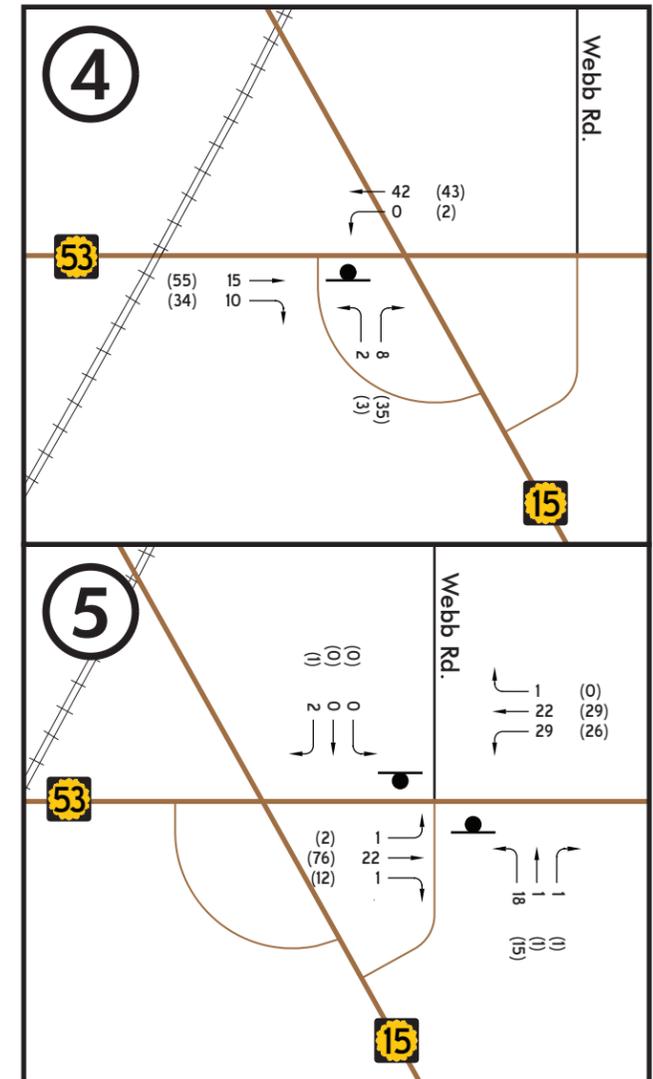
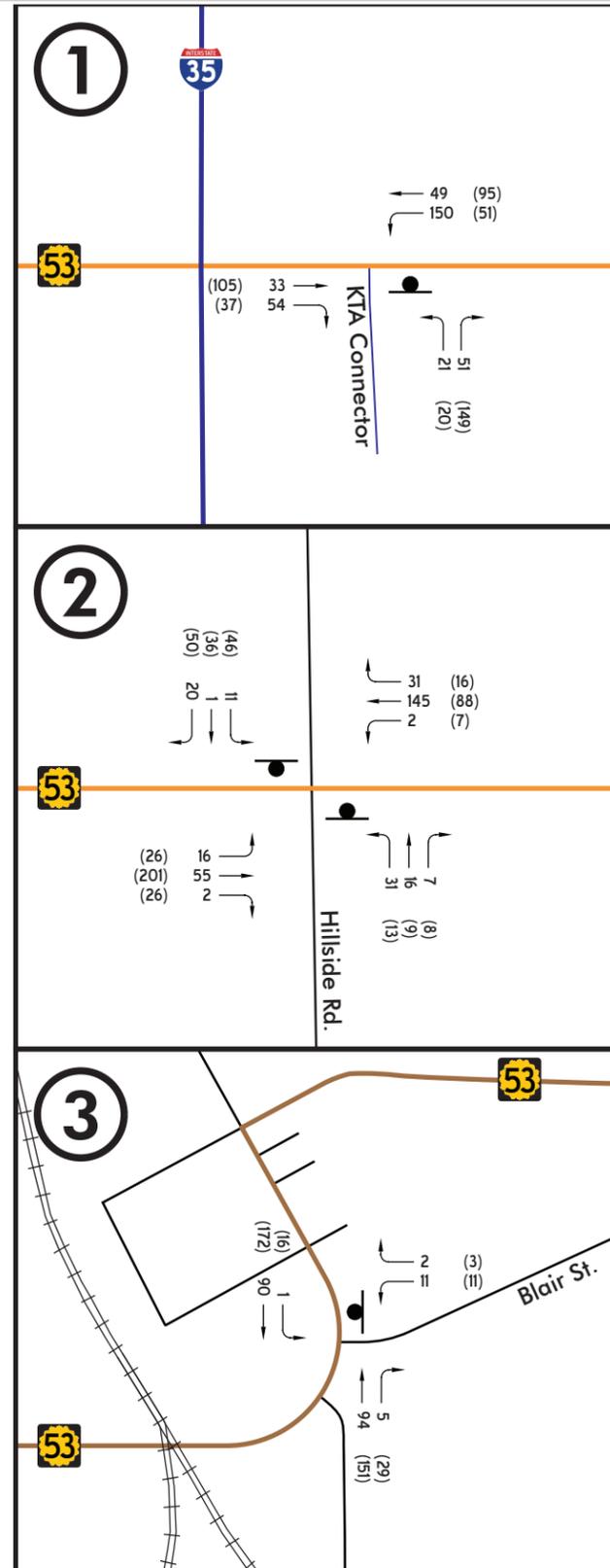
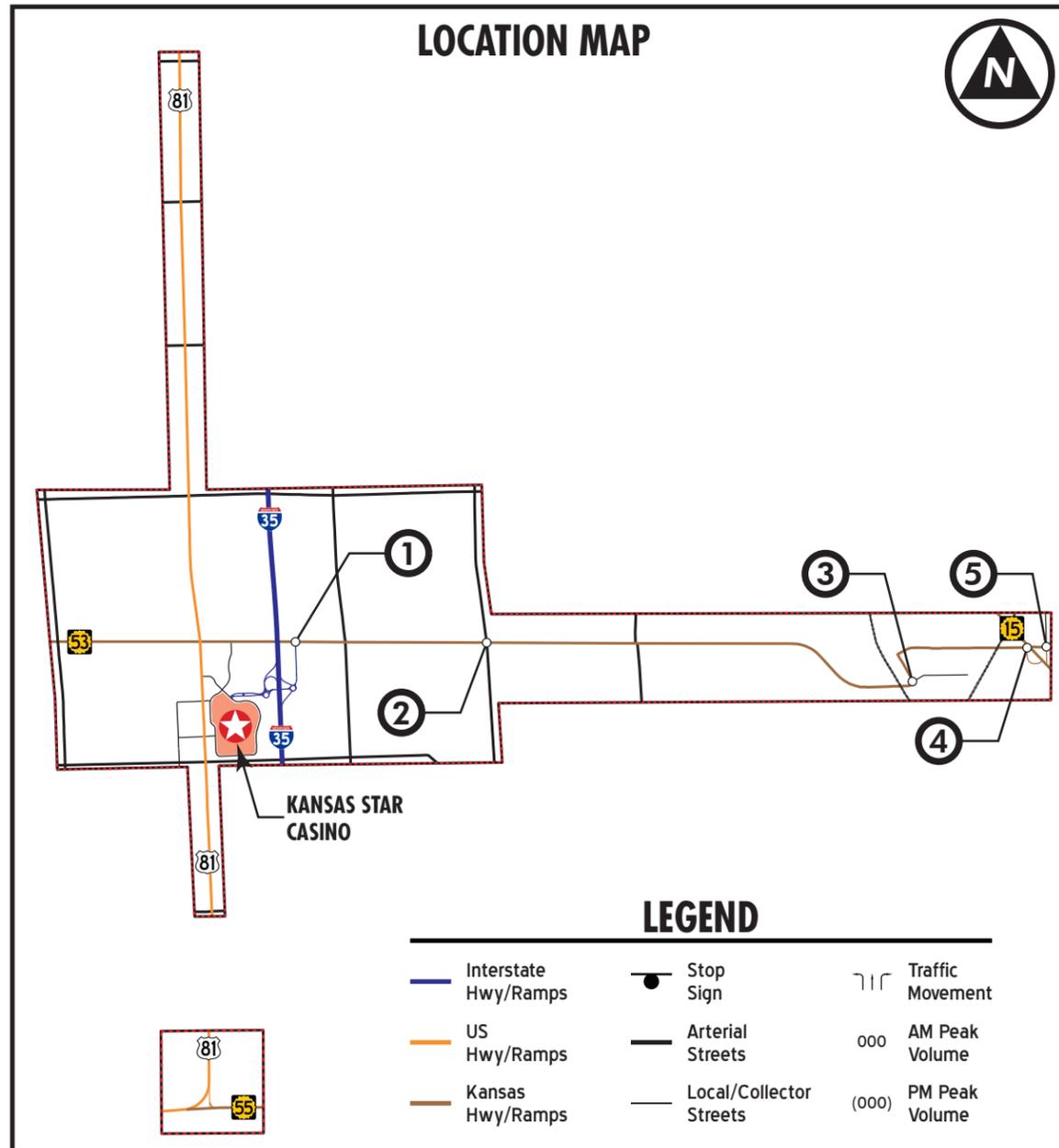
CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

Exhibit 5-1 US-81 Intersections Along 50 highest Hazard Index's in the WAMPO region in 2007. Review of current data would provide a better insight as to how this crossing ranks with other crossings in the region.



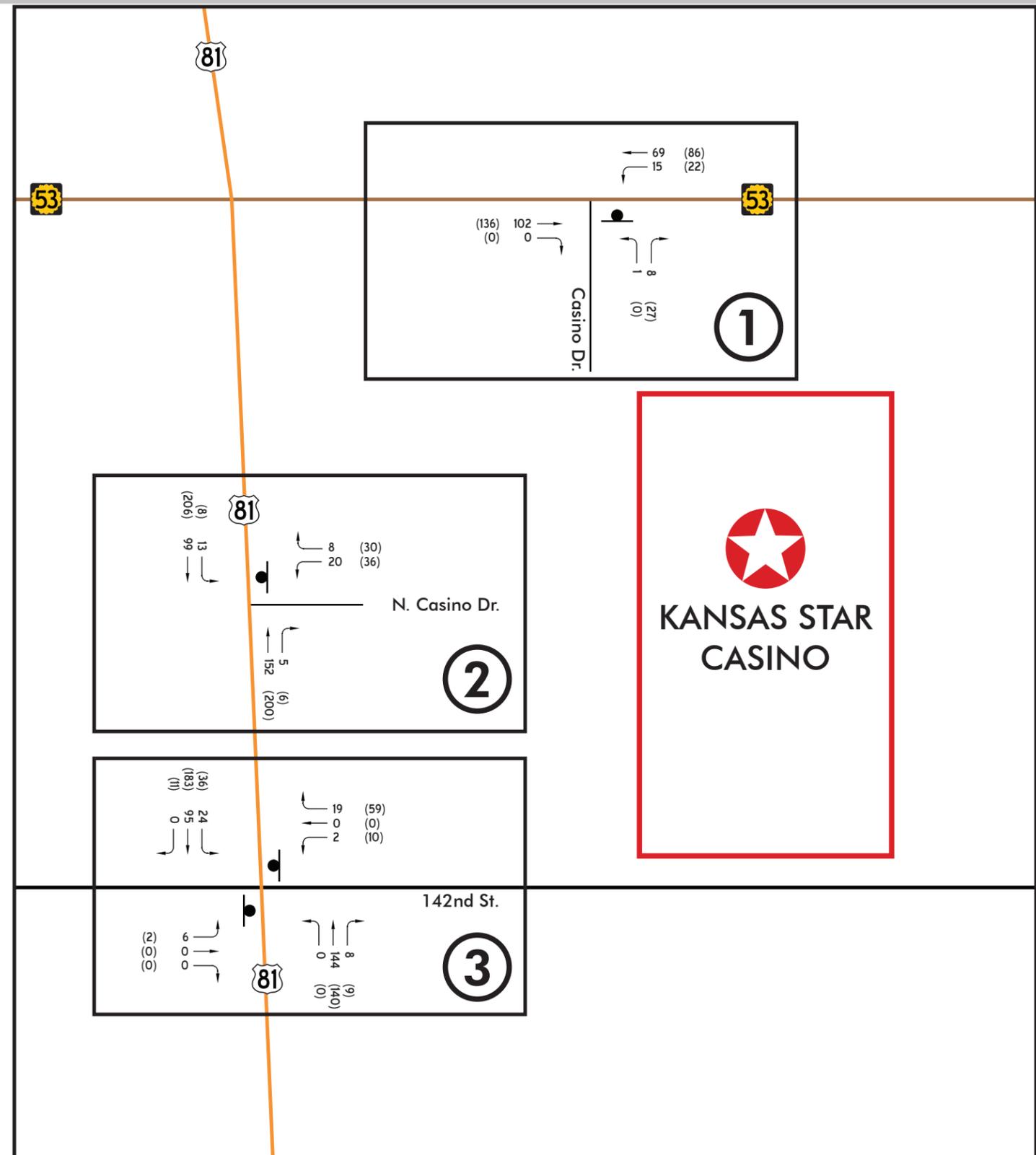
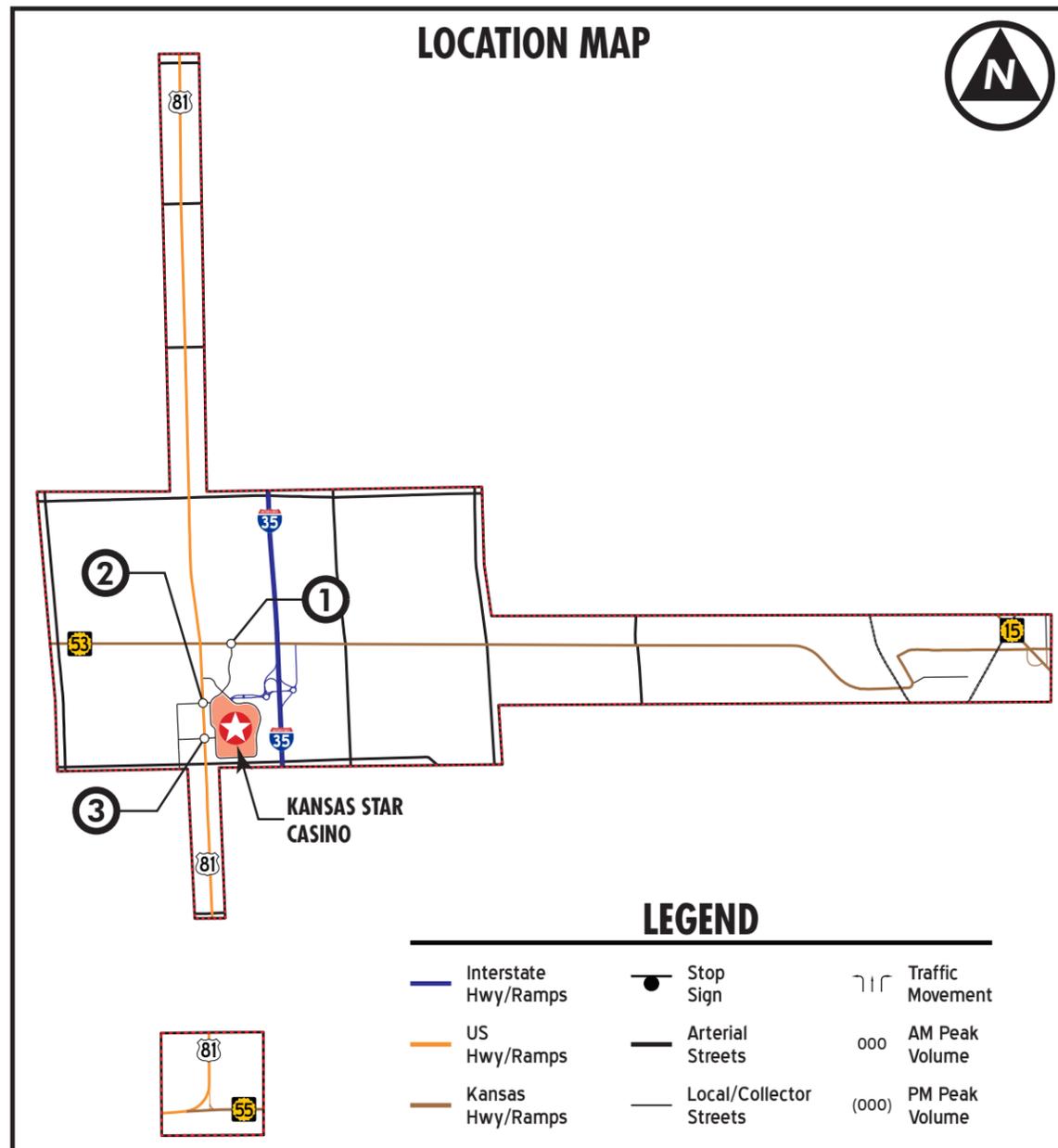
CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

Exhibit 2: K-53 Intersection Diagrams



CHAPTER 5: EXISTING TRANSPORTATION CONDITIONS

Exhibit 3: Casino Vicinity Intersection Diagrams



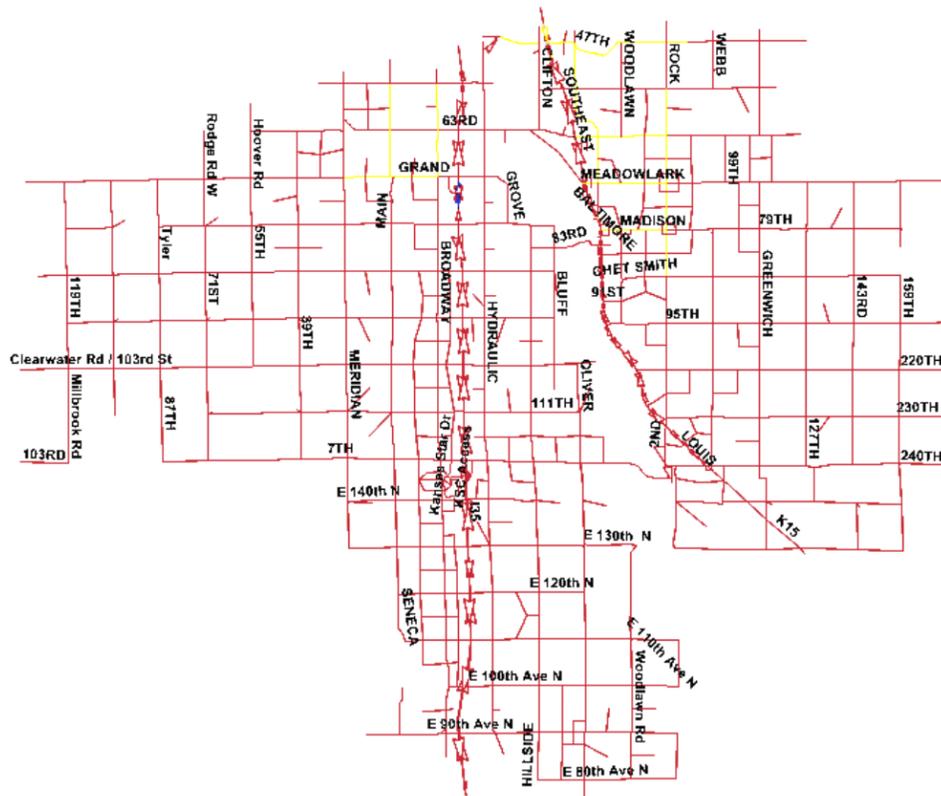
CHAPTER 6: FUTURE TRANSPORTATION CONDITIONS

The future development potential of the Study Area necessitates the need to assess the impacts of growth on the transportation system. A travel demand model was created for the CATP based on the regional WAMPO Model. The roadway network and Traffic Analysis Zones (TAZ) were built to a finer grain and WAMPO's planned projects through 2040 within the Study Area were added. This is considered the "Future No Build Scenario." The model was then used to assess the traffic impacts under future conditions.

TRAVEL DEMAND MODEL

WAMPO's Travel Demand Model was used as a base to forecast future year 2040 traffic volumes in the Study Area. This process started by building a Base Year sub-area model (2010) from the existing WAMPO model. The extent of the sub-area model is shown in [Exhibit 4](#).

Exhibit 4: CATP Model Network



CHAPTER 6: FUTURE TRANSPORTATION CONDITIONS

Assuming the number of trains per day remaining at 35 trains/day, using the rounded “No build” ADT model volume of 6,000 veh/day traveling through it and that the lights and gates would remain the Hazard Index would be approximately 21,000, which would be similar to the existing WAMPO 2007 Crossing Study rankings of around 21st St. (Washington St. at BNSF). Given the nature of the assumptions given, using the Hazard Index as a future predictor of how safe the crossing will be is not exact, and is highly sensitive to the number of trains at the crossing. It does illustrate a rough comparison of how the 9406P crossing will function relative to its current Hazard Index and that of other regional crossings (i.e. Washington St. at BNSF).

OTHER PROJECT CONSIDERATIONS

There are two major regional transportation projects that are in the planning stages that have the potential to influence traffic in the Study Area. Although outside the CATP Study Area, these projects connect to routes within the Study Area and are within the CATP model network. Further discussion of these projects is included in the following chapter.

95th Street South

The South Area Transportation Study (SATS) assessed future mobility needs in southern Sedgwick County through an evaluation of various transportation improvements. SATS identified three alternatives, one of which was an arterial loop parkway using 95th St. South as the east/west route. 95th St. improvements, including a new bridge over the Arkansas River, are included in the Metropolitan Transportation Plan (MTP) 2035. This makes them eligible to receive federal transportation funds; however, funding has not been secured. The inclusion of 95th St. improvements also places them in the future WAMPO model network, which was used as the basis for the model developed for the CATP.

The inclusion of the 95th St. South project in the future year CATP model significantly changed traffic patterns surrounding the Study Area. The new bridge over the Arkansas River reroutes future traffic onto 95th Street, significantly impacting east/west travel in and around the Study Area.

Mulvane Alternative Route

Similar to the 95th St. improvements, the Mulvane Alternative Route (MAR) is another planned project that is included in the MTP 2035 as well as the future WAMPO model network. The MAR is a route to connect K-15 and K-53, bypassing Mulvane to the west with an overpass crossing the BNSF railroad. This future improvement is also included in the CATP future year model network.

Although this project did not significantly change travel patterns when included in the project area model, the MAR would improve travel delay caused by trains, traveler safety crossing railroad tracks, and route continuity.

BICYCLE & PEDESTRIAN FACILITY ANALYSIS

There are currently very few pedestrian and bicycle facilities within the Study Area and all are on the eastern portion of the area near downtown Mulvane. However, planning activities have identified one future bicycle route within the Study Area. The WAMPO Regional Pathway System Plan (RPSP) and the draft Sedgwick County Quad Cities Joint Area Plan identify potential facilities on both sides of the Arkansas River. Facilities along the river could bring the demand for more bicycle and pedestrian facilities in the Study Area. The RPSP corridors near the Study Area are shown on **Map G** on the next page.

If the demand for bicycle and pedestrian facilities increases in the Study Area, planning for the routing of these facilities will need to be completed. The CATP identifies very preliminary options for routing bicycle facilities. The focus is on bicycle facilities since demand for pedestrian facilities is not expected to increase due to the development types and low density development expected in the area. The CATP identifies primary north/south and east/west routes to provide bicycle access through the Study Area while trying to provide efficient and safe access to future development.

Corridors that would be good candidates for future bicycle corridors have been identified, as well as the opportunities they provide which make them good candidates. These corridors are for planning purposes only and will require further investigation to determine if bicycle facilities could be included.

The Arkansas River corridor, with multi-use paths along both sides of the river, is identified in the WAMPO Regional Pathway System Plan and the draft Sedgwick County Quad Cities Joint Area Plan. This corridor provides a north/south route to connect with a planned route on 83rd St. South connecting Derby, Haysville, and areas further north. This route would provide good north/south connectivity, connecting the Study Area to facilities further north at 83rd St. South while offering aesthetically pleasing views along the river.

As part of the South Area Parkway System, the planned redevelopment of the 95th St. South corridor offers the opportunity to start a bicycle corridor from a clean slate. The Derby-Mulvane Joint Area Plan, draft Sedgwick County Quad Cities Joint Area Plan, South Area Transportation Study, and Metropolitan Transportation Plan identify 95th St. South improvements to a parkway, including a new bridge over the Arkansas River. The Quad Cities Plan states that future bicycle/pedestrian infrastructure should be considered in the future design and development of 95th St. South. This corridor would provide good east/west connectivity.

The K-53 corridor offers both opportunities and challenges as a future bicycle corridor. K-53 provides a direct connection between downtown Mulvane and the Casino Complex. This is currently the only vehicular bridge over the Arkansas River south of 83rd St. South (4.5 miles north of K-53) and north of K-55 (6 miles south of K-53). But the bridge’s shoulders are too narrow

for dedicated bicycle/pedestrian accommodations. If constructed with bicycle facilities, the planned bridge on 95th St. South would be a better east/west bicycle connection over the Arkansas River. Paved shoulders exist on segments of K-53, but there is a lack of continuity. The intersections would not create significant safety issues when including bicycle facilities. K-53 carries between 2,700 and 4,000 vehicles between US-81 and downtown Mulvane, with 5-10% being heavy commercial traffic. This route may pose some issues due to its state designation as well as the limited space under I-35.

North/south corridors beyond the Arkansas River corridor are limited. Oliver, Hillside, and Seneca are not paved north of K-53, which limit their appeal as bicycle corridors. Hydraulic is paved but has guard rails along both sides of the roadway with limited clearance on either side just north of K-53. US-81 is limited by its federal road designation, greater travel speeds, higher traffic volumes and projected traffic growth as development continues. US-81 is also a commercial and industrial corridor, which does not make it an ideal candidate for a bicycle corridor.

It is important to provide a design that facilitates safe and convenient travel for bicyclists. Appropriate signage is also an important element of bicycle facilities. **Exhibit 5** (page 26) shows example bicycle signage from the Manual on Uniform Traffic Control Devices (MUTCD) as well as proper use and location.

Bicycles are technically allowed on most state and US highways, but such routes are not normally thought of as ideal bicycle corridors, particularly outside of urbanized areas. As rural highways, both K-53 and US-81 fit this description within the Study Area. By definition, rural highway facilities are designed to provide safe travel for a moderate volume of motorized vehicles traveling at relatively high speeds. For these reasons, KDOT does not normally support constructing these types of roadways with on-road or adjacent bicycle facilities.

Despite providing direct connections between established communities and the casino, there are several specific issues beyond the generalized concerns with providing bicycle accommodations on K-53 and US-81. Paved shoulder space is narrow on both routes and lack continuity on K-53. The K-53 bridge over the Arkansas River has paved shoulders, but lacks the necessary width for pedestrian use, which is unlikely to change in the future. Also, the I-35 bridge over K-53 lacks sufficient span to allow for the construction of adjacent bicycle lanes.

PUBLIC TRANSPORTATION ANALYSIS

There is currently no fixed-route public transportation service within the Study Area. Wichita Transit operates fixed route service in the vicinity of the Study Area. The closest service is located 4 miles north of the Study Area (8 miles north of the Casino Complex) at US-81 and 55th St. South. Expansion of

CHAPTER 6: FUTURE TRANSPORTATION CONDITIONS

service is not planned at this time. However, the Metropolitan Transportation Plan 2035 discusses potential connections for commuter bus routes which could include routes along US-81, K-15, and/or I-35. Future expansion may be desired to connect the Casino Complex or other destinations that may develop.

SUMMARY

Under the Future No Build Scenario there are no anticipated capacity issues along mainline roadways. Current lane configurations and their inherent capacity should be sufficient to maintain adequate operational conditions through 2040.

Despite adequate roadway capacity within the Study Area, intersection capacity will likely become a concern as new development occurs and additional traffic begins using the transportation system. The greatest level of service impacts are anticipated at the following intersections:

- Arterial intersections north of K-53 along US-81
- Intersections and driveways in close proximity to Kansas Star Casino
- Future commercial and high-density development entrances onto US-81 and K-53

Future improvements to 95th St. South as the SATS Loop is developed will have significant impacts on traffic volumes and travel patterns within the Study Area. In particular, a new bridge crossing the Arkansas River will provide a new east/west route choice. The extent of these impacts will depend upon project timing, phasing, and the specific improvements included in each construction phase. Additionally, the likely changes in travel behaviors may affect future land development patterns in a way that has not been anticipated in current land use plans. Further study should be conducted to gain a more thorough understanding of probable impacts related to the expansion of 95th St. South.

The Casino and future ancillary development are not expected to generate significant bicycle or pedestrian traffic. Furthermore, neither the existing road system nor the Future No Build Scenario are ideal for these travel modes. There will be little demand for dedicated bicycle/pedestrian facilities with the Casino as a destination. However, as the regional bicycle/pedestrian network is expanded into the south portion of the Study Area, a connection to the immediate Casino vicinity should be considered.

Map G: WAMPO Regional Pathway System Plan Corridors

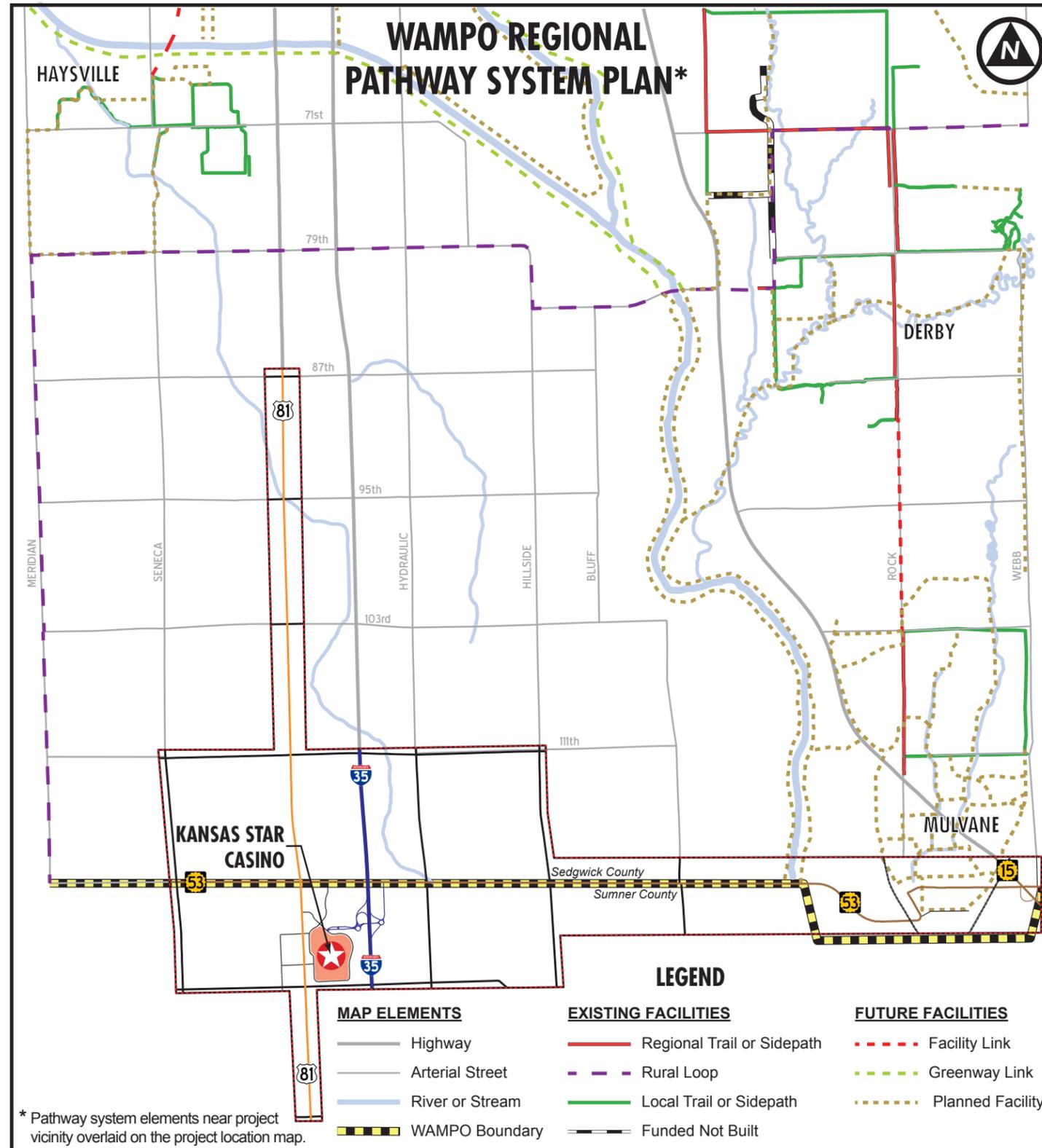
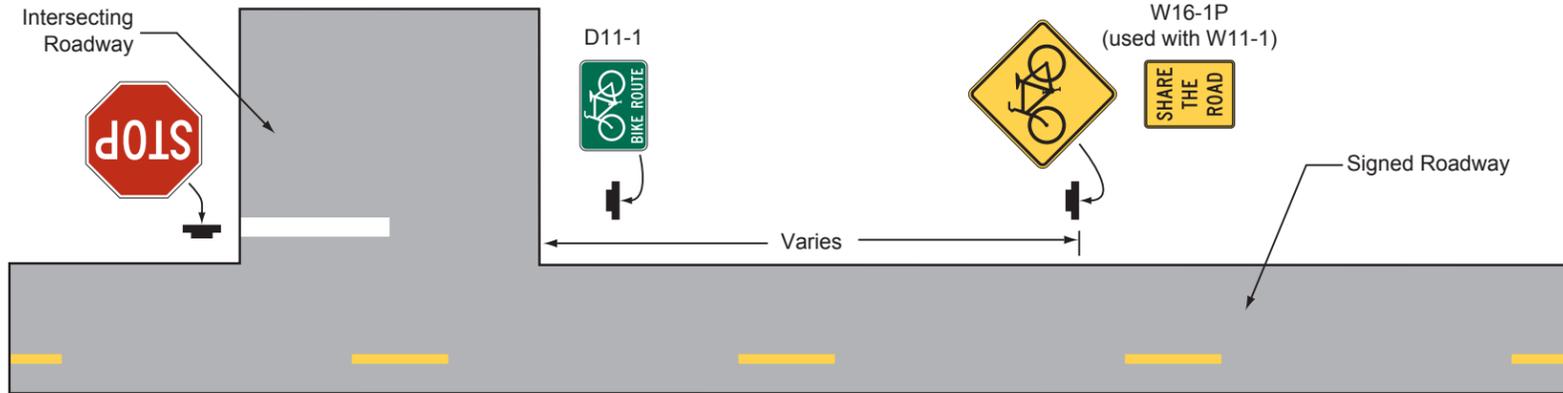


Exhibit 5: MUTCD Bicycle Signage Examples

MUTCD BICYCLE SIGNAGE EXAMPLES*

 <p>W11-1</p> <p>“The Bicycle Warning (W11-1) sign alerts the road user to unexpected entries into the roadway by bicyclists, and other crossing activities that might cause conflicts.”</p> <p style="text-align: right;">-- page 796</p>	 <p>W16-1P</p> <p>“In situations where there is a need to warn motorists to watch for bicyclists traveling along the highway, the SHARE THE ROAD (W16-1P) plaque may be used in conjunction with the W11-1 sign.”</p> <p style="text-align: right;">-- page 798</p> <p>“A W16-1P plaque shall not be used alone.”</p> <p style="text-align: right;">-- page 134</p>	 <p>D11-1</p> <p>“Bike Route Guide (D11-1) signs may be provided along designated bicycle routes...”</p> <p style="text-align: right;">-- page 798</p> <p>“The Bicycle Route Guide sign may be installed where no unique designation of routes is desired.”</p> <p style="text-align: right;">-- page 801</p>
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PROPER USE AND LOCATION OF BICYCLE SIGNAGE**



* Per Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition as revised May 2012

** Adapted from MUTCD Figure 9B-5 on page 801

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

The ultimate goal of the Casino Area Transportation Plan is to preserve and enhance safe, efficient transportation within the Study Area. The analysis of existing and future conditions has identified concerns that might interfere with achieving this goal. This chapter contains recommended infrastructure improvements, specific actions, and policies for addressing projected transportation deficiencies.

RECOMMENDED TRANSPORTATION IMPROVEMENTS

The transportation analysis uncovered no current or future highway capacity deficiencies and only minimal safety concerns. The main issues are related to intersection capacity and operations plus the future impacts of providing highway access to new development. Therefore, recommended improvements focus on managing access to US-81 and K-53 while optimizing intersection performance. This strategy will help preserve operational efficiency as land is developed, particularly near Kansas Star Casino where most development can be expected. The specific location, timing, density, and land use of these developments will be determined largely by market demand.

The access management treatments and roundabouts recommended in the Concept Improvement Plan are two types of improvements frequently misunderstood by those outside of the transportation planning and design professions. In general, access management seeks to balance property access, traffic operations and safety with a variety of techniques. A roundabout is a specific type of intersection designed to minimize travel delay and turning movement conflicts. However, a roundabout is not the optimal solution for every intersection. Determining the proper access management technique or intersection configuration depends upon a number of site-specific conditions and traffic related factors at a given location. Final decisions on the appropriate improvement type at each location and actual design parameters (size, capacity, etc.) will be made based on engineering evaluations conducted prior to the design stage.

Appendix 5 provides further descriptions and explanations of common access management techniques including roundabouts. Additional information can also be found on the KDOT website at www.ksdot.org.

Recommended improvements were not prioritized because no critical or imminent concerns exist. Instead, the recommendation for each improvement location includes a “trigger.” The triggers are events or performance measures that indicate when the improvement(s) should be constructed. Planning level cost estimates are provided for construction in 2013 dollars.

The recommendations are listed by intersection location along US-81 and K-53. Each listing includes a reference to the Concept Improvement Plan graphic (labeled **Exhibit 6** through **Exhibit 11**) that illustrates the recommendations.

LISTING OF RECOMMENDATIONS

1. US-81 & 87th St. South (Exhibit 6)

Recommended Access Management:

- Substantial compliance with KDOT’s Access Management Policy with full access controls, except as approved by highway access permit.
- Relocation/consolidation of driveways and acquisition of existing access to meet access spacing requirements.
- Closure of driveways within the intersection functional area.
- Redesign and reconstruction of substandard access openings.

Recommended Improvements: Signalize the intersection and modify the lane configuration as illustrated in the Concept Improvement Plan.

Planning Level Cost Estimate: \$500,000

Trigger: Intersection meets traffic warrants for signalization.

Discussion: The recommended improvements are generally consistent with the South Broadway Corridor Plan prepared by WAMPO and the city of Haysville. Minor differences in lane configuration are attributed to analysis methodology. A roundabout was suggested as a possible alternative, but it could not be recommended without further study. Additional roundabout analysis was conducted during this project and determined to operate acceptably. However, signalization is recommended for reasons related to future 95th St. South improvements such as:

- The extent of impacts to traffic volumes and development patterns has not been fully studied, but would be expected to affect this intersection.
- Planned improvements are not programmed and timing is unknown.
- Roundabouts cost more, require more right-of-way, and are more difficult to retrofit than signalized intersections. The associated risks factored into the recommendation.

Future assessment of 95th St. South may alleviate these concerns and provide ample justification to construct a roundabout.

2. US-81 & 95th St. South (Exhibit 6)

Recommended Access Management:

- Substantial compliance with KDOT’s Access Management Policy with full access controls, except as approved by highway access permit.
- Relocation/consolidation of driveways and acquisition of existing access to meet access spacing requirements.
- Closure of driveways within the intersection functional area.
- Redesign and reconstruction of substandard access openings.

Recommended Improvements: Signalize the intersection and modify the lane configuration as illustrated in the Concept Improvement Plan.

Planning Level Cost Estimate: \$625,000

Trigger: Intersection meets traffic warrants for signalization or construct with planned improvements to 95th St. South.

Discussion: As project details and impacts clarified, the recommended configuration should be reviewed and modified as appropriate.

3. US-81 & mid-mile between 111th Street South and K-53 (Exhibit 7)

Recommended Access Management:

- Full compliance with KDOT’s Access Management Policy with full access controls along US-81 highway frontage, except where indicated in the Concept Improvement Plan as approved by highway access permit.
- Develop commercial sites with ample onsite circulation to reduce highway access needs.

Option 1 Recommended Improvements: Construct a one-lane roundabout to serve future development on both sides of US-81.

Option 1 Planning Level Cost Estimate: \$2,250,000

Option 2 Recommended Improvements: Construct a signalized intersection to serve future development on both sides of US-81. The lane configuration should be as illustrated in the Concept Improvement Plan.

Option 2 Planning Level Cost Estimate: \$500,000

Trigger: Submittal of development and/or highway access permit applications.

Discussion: Frontage properties along both sides of US-81 north of K-53 are planned for future commercial development (see **Map F** on pg. 15). Recommended improvements should be implemented by local agencies as conditions of development approval. Construction costs could then be allocated to the development as a reasonable traffic mitigation requirement.

4. Casino Vicinity Access Management (Exhibit 8)

Recommendations:

- Full compliance with KDOT’s Access Management Policy for new development locations as a condition of Highway Access Permit approval.
- Substantial compliance with KDOT’s Access Management Policy for previously developed locations where improvements are constructed.
- Full access controls along US-81 and K-53 highway frontages, except where indicated in the Concept Improvement Plan as approved by highway access permit.
- Relocation/consolidation of driveways to meet access spacing requirements.
- Redesign and reconstruction of substandard access openings.
- Develop the property immediately southwest of the US-81/K-53 intersection with ample onsite circulation to reduce highway access needs.

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

Planning Level Cost Estimate: N/A

Trigger: Submittal of development and/or highway access permit applications OR with adjacent intersection improvements, whichever is applicable.

Discussion: Preserving adequate access and intersection spacing will be critical to maintaining highway safety and operational efficiency. Recommended access management for new development should be implemented as conditions of development and highway access permit approval. Recommended access management adjacent to intersection improvements should be implemented at construction with costs allocated to the project budget.

5. US-81 & K-53 (Exhibit 8)

Recommended Access Management: See recommendation #4.

Option 1 Recommended Improvements: Replace the existing intersection with a one-lane roundabout.

Option 1 Planning Level Cost Estimate: \$2,250,000

Option 2 Recommended Improvements: Signalize the intersection and modify the lane configuration as illustrated in the Concept Improvement Plan.

Option 2 Planning Level Cost Estimate: \$550,000

Trigger: Intersection meets traffic warrants for recommended improvement.

Discussion: The intersection operates acceptably under current conditions. The existing intersection falls short of meeting warrants, but will meet warrants in the near-term as adjacent properties develop. Additionally, the safety analysis shows that the 5-year crash rate exceeded the critical rate. Both improvement options were examined and determined to operate acceptably. However, a roundabout would more effectively address the identified crash concern.

6. US-81 & Kansas Star Dr. (Exhibit 8)

Recommended Access Management: See recommendation #4.

Option 1 Recommended Improvements: Replace the existing intersection with a one-lane roundabout.

Option 1 Planning Level Cost Estimate: \$2,250,000

Option 2 Recommended Improvements: Signalize the intersection and modify the lane configuration as illustrated in the Concept Improvement Plan.

Option 2 Planning Level Cost Estimate: \$400,000

Trigger: Submittal of development and/or highway access permit applications for the property immediately southwest of the US-81/K-53 intersection OR intersection meets traffic warrants for recommended improvement, whichever comes first.

Discussion: The property immediately southwest of the US-81/K-53 intersection is planned for future commercial development to one-half mile west of the intersection (see **Map F** on pg. 15). Recommended improvements

should be implemented by local agencies as conditions of development approval. Construction costs could then be allocated to the development as a reasonable traffic mitigation requirement.

7. US-81 & K-55 (Exhibit 9)

Recommended Access Management:

- Full compliance with KDOT's Access Management Policy with full access controls along US-81 and K-55 highway frontages.
- Closure and/or realignment of private driveways as illustrated in the Concept Improvement Plan.
- Redesign and reconstruction of substandard access openings.

Option 1 Recommended Improvements: Replace the existing intersection with a one-lane roundabout.

Option 1 Planning Level Cost Estimate: \$2,800,000

Option 2 Recommended Improvements: Replace the existing intersection with a T-intersection configured as illustrated in the Concept Improvement Plan.

Option 2 Planning Level Cost Estimate: \$600,000

Trigger: Crash rate exceeds critical crash rate or crash severity is determined by KDOT to be excessive compared to similar locations.

Discussion: The intersection operates acceptably as currently configured through the 2040 study horizon and the crash rate is lower than the critical rate. However, a review of accident reports indicates multiple severe crashes. Additionally, several substantial skid marks were noted on US-81 during field observations, which is evidence of frequent evasive maneuvers. The speed differential between the through-movements on US-81 (posted 65 mph) and entering traffic from K-55 is a likely contributing factor. The atypical geometry provides sight lines at unusual angles. Drivers of entering US-81 likely misjudge the speed and distance of oncoming traffic.

This intersection should continue to be monitored as development occurs and traffic volumes increase. Either configuration above would improve sight distance with typical intersection geometrics more in line with driver expectations. A roundabout would provide safety advantages over the T-intersection.

8. K-53 & Washington St./Wyldeewood Cellars Driveway (Exhibit 10)

Recommended Access Management:

- Full compliance with KDOT's Access Management Policy with full access controls along K-53 highway frontage, except as approved by highway access permit.
- Develop commercial sites immediately northeast of the US-81/K-53 intersection with ample onsite circulation to reduce highway access needs.

Option 1 Recommended Improvements: Relocate the Wyldeewood Cellars driveway to Kansas Star Dr. and realign Washington St. to Kansas Star Dr.

Provide the stop controls and lane configurations illustrated in the Concept Improvement Plan.

Option 1 Planning Level Cost Estimate: \$300,000

Option 2 Recommended Improvements: Relocate the Wyldeewood Cellars driveway and realign Washington St. to create a new intersection with K-53 approximately 400 feet west of the existing location. Provide the stop controls and lane configurations illustrated in the Concept Improvement Plan.

Option 2 Planning Level Cost Estimate: \$175,000

Trigger: None. The project should be initiated in the near-term as practicable rather than being monitored for a trigger event.

Discussion: This project should be considered the priority because it will address an existing issue. The existing intersection is located directly adjacent to the I-35 overpass, which severely restricts intersection sight lines. The location and design are not consistent with current design criteria/guidance. The intersection was not analyzed due to low traffic volumes. However, field observations and anecdotal evidence support the project's need as a potential safety concern.

Highway access to the winery property is restricted to the current driveway location. Actual frontage on the south side of K-53 is under casino ownership along the remainder of the north property line. Either recommendation option would require coordination between the two owners and negotiation of an access agreement or exchange of property.

Washington St. is public right-of-way between K-53 and 111th St. South. KDOT should initiate discussions with Sedgwick County regarding realignment of Washington St. Otherwise, the right-of-way could be vacated when the property is subdivided and realigned with development.

9. K-53 & KTA Connector/Hydraulic Rd. (Exhibit 11)

Recommended Access Management:

- Full compliance with KDOT's Access Management Policy and acquire full access controls, except as approved by highway access permit in the locations and configurations illustrated in the Concept Improvement Plan.
- Develop commercial sites between the KTA Connector and Hydraulic Rd. with ample onsite circulation to reduce highway access needs.

Recommended Improvements: Replace the existing KTA Connector intersection with a one-lane roundabout and realign the north leg of the existing Hydraulic Rd. intersection to connect with the roundabout.

Planning Level Cost Estimate: \$3,200,000

Trigger (KTA Connector Improvements): Northbound traffic queue exiting KTA Connector onto K-53 begins approaching KTA toll booth.

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

Trigger (Hydraulic Rd. Improvements): Realign with KTA intersection improvements OR when intersection meets traffic warrants for recommended improvements after construction of the KTA improvements.

Discussion: Both intersections operate acceptably under current conditions, but LOS deteriorates approaching the Future No Build scenario. Forecasted conditions show high peak hour (AM and PM) turning volumes entering and exiting the KTA Connector from K-53. Left turns into and right turns out of the KTA conflict during both peak hours. A significant portion of the left-turn volumes come from the north leg of the Hydraulic intersection. This Hydraulic Rd. to KTA movement interferes with the through traffic on K-53.

Signalization was investigated as an option for the KTA intersection, but resulted in unacceptable delay. It is possible that some combination of alternative improvements would work, but the configuration would likely require significant road realignments and right-of-way acquisition. The recommended roundabout is the simple solution. No other improvement options can be confidently recommended without detailed analysis in excess of current project allowances.

TRAFFIC ANALYSIS FOR FUTURE BUILD SCENARIO

The conditions that will exist in 2040 after recommended improvements are constructed is referred to as the Future Build Scenario. An intersection operational analysis of Study Area intersections was completed for the Future Build Scenario, including the alternate configurations shown in the Concept Improvement Plan. For consistency, the analysis included the same intersections previously assessed under existing conditions and the Future No Build Scenario even those with no recommended improvements. **Table 19** summarizes the analysis results.

As previously explained, LOS D is generally considered the lowest acceptable level of operational performance for highway intersections. The analysis indicated that all Study Area intersections are projected to operate acceptably in the Future Build Scenario, with most operating at LOS A or B. This includes the recommended and alternative configurations.

Table 19: Intersection Operational Analysis (Future Build Scenario)

Intersection	Movement	A.M. Peak Hour			P.M. Peak Hour		
		LOS ²	Delay ³	V/C ⁴	LOS ²	Delay ³	V/C ⁴
US-81 and 87th Street	All Movements (Signalized)	B	11.5	0.58	B	10.1	0.64
US-81 and 95th Street	All Movements (Signalized)	C	22.3	0.31	D	38.0	0.93
US-81 and 111th Street	Eastbound	A	9.4	0.32	B	13.2	0.35
	Westbound	A	8.8	0.29	A	9.7	0.28
	Northbound	A	9.9	0.45	B	11.7	0.57
	Southbound	B	10.6	0.50	C	20.7	0.78
	All Movements (Signalized) ¹	B	14.6	0.65	A	19.1	0.68
US-81 and K-53	Eastbound	B	13.1	0.48	C	20.3	0.58
	Westbound	A	7.9	0.29	B	10.3	0.36
	Northbound	B	11.0	0.49	C	23.1	0.76
	Southbound	A	9.3	0.43	C	19.7	0.76
	All Movements (Signalized) ¹	B	17.7	0.67	B	19.0	0.77
US-81 and Kansas Star Drive	Westbound	A	8.1	0.32	B	12.9	0.52
	Northbound	A	7.5	0.37	A	8.9	0.41
	Southbound	B	11.6	0.56	C	19.2	0.74
	All Movements (Signalized) ¹	A	7.6	0.63	A	1.3	0.35
US-81 and 142nd Street	Eastbound	D	25.7	0.07	D	32.1	0.02
	Westbound	C	22.5	0.48	B	14.1	0.20
	Northbound left-turn	A	0.0	0.05	A	0.0	0.00
	Southbound left-turn	A	8.0	0.00	A	8.4	0.14
US-81 and K-55	Westbound	A	7.1	0.17	A	5.2	0.08
	Northbound	A	8.4	0.43	A	6.4	0.29
	Southbound	A	4.1	0.06	A	3.9	0.04
	Southbound (Bypass Lane)	A	8.1	0.41	A	5.2	0.18
	Westbound ¹	A	8.4	0.05	A	7.9	0.03
	Southbound left-turn ¹	C	18.1	0.30	B	11.8	0.10
K-53 and Kansas Star Drive	Westbound left-turn	A	8.5	0.10	A	8.6	0.06
	Northbound	B	13.4	0.27	B	12.8	0.20
K-53 and Hydraulic	Westbound left-turn	A	7.9	0.01	A	8.9	0.03
	Northbound	B	14.5	0.35	B	14.0	0.13
K-53 and KTA Connector	Eastbound	D	27.0	0.81	C	18.4	0.75
	Westbound	C	18.9	0.73	B	11.6	0.51
	Northbound	A	8.0	0.26	B	10.3	0.25
	Northbound (Bypass)	A	7.1	0.22	C	15.1	0.54
	Southbound	B	11.1	0.34	A	8.7	0.29
K-53 and Hillside Road	Eastbound left-turn	A	7.9	0.02	A	7.8	0.06
	Westbound left-turn	A	7.7	0.00	A	8.6	0.01
	Northbound	B	14.3	0.17	C	22.6	0.20
	Southbound	B	11.5	0.09	C	24.1	0.42
K-53 and Blair Street	Westbound	B	12.0	0.03	B	11.6	0.09
	Southbound left-turn	A	8.1	0.02	A	7.7	0.00
K-53 and Southbound K-15 Ramp	Westbound left-turn	A	0.0	0.00	A	7.9	0.00
	Northbound	A	9.1	0.02	B	10.3	0.10
K-53 and Northbound K-15 Ramp	Eastbound left-turn	A	7.5	0.00	A	7.4	0.00
	Westbound left-turn	A	7.6	0.05	A	8.0	0.04
	Northbound	B	12.5	0.09	B	13.2	0.16
	Southbound	A	9.1	0.05	B	11.7	0.15

¹ Alternate Configuration

² Level of Service

³ Delay in seconds per vehicle

⁴ Volume/capacity ratio

Sensitivity Analysis

Intersection performance below LOS B (i.e. C, D, E, F) under a future condition, indicates diminished capacity to absorb increases in traffic volume beyond the assumed rate of growth. To determine the degree of sensitivity to additional growth, a "Sensitivity Analysis" was conducted for Study Area intersections that exhibited performance below LOS B for the Future Build Scenario.

Table 20 shows the results of the Sensitivity Analysis. The degree of sensitivity is shown as the estimated percentage of increase beyond the assumed volumes each of these intersections could sustain before operating unacceptably (LOS E or F). The growth projections are shown as a percentage of total intersection traffic volume. The table also indicates the specific traffic movement directions that would be affected.

Table 20: Sensitivity Analysis Results

Intersection	A.M. Peak Hour	P.M. Peak Hour
	% Increase and LOS*	% Increase and LOS*
US-81 and 95th Street	45% Increase Cause Eastbound & Westbound Approach to LOS E	10% Increase Cause Eastbound & Westbound Approach to LOS E
US-81 and 111th Street	65% Increase Cause Southbound Approach to LOS E	15% Increase Cause Southbound Approach to LOS E
US-81 and K-53	45% Increase Cause Eastbound Approach to LOS E	15% Increase Cause Northbound Approach to LOS E
US-81 and Kansas Star Drive	55% Increase Cause Southbound Approach to LOS E	20% Increase Cause Southbound Approach to LOS E
US-81 and 142nd Street	15% Increase Cause Westbound Approach to LOS E	5% Increase Cause Westbound Approach to LOS E
K-53 and KTA Connector	10% Increase Cause Eastbound Approach to LOS E	20% Increase Cause Northbound Approach to LOS E
K-53 and Hillside Road	75% Increase Cause Northbound Approach to LOS E	15% Increase Cause Southbound Approach to LOS E

*Level of Service

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

OTHER RECOMMENDATIONS

95th Street South

Future improvements to 95th St. South were modeled under future conditions as a planned facility under the Future No Build Scenario model network, although only the US-81 intersection is located within the Study Area. The result was a fairly significant change in travel patterns, which redistributed traffic volumes. The current phasing may not maximize project expenditures.

It is recommended that the SATS Loop projects, especially those on 95th Street South, be studied further to better understand the traffic and development impacts. This should include investigation of ancillary traffic impacts to other facilities, unanticipated effects on development patterns, and a reassessment of the order, extents, and specific improvements of each project phase.

Mulvane Alternative Route

Like the 95th St. improvements, the Mulvane Alternative Route (MAR) was also a planned project within the sub-area model network. Based on the Comprehensive Plan map provided by the city of Mulvane (see [Appendix 4](#)), this proposed project connects K-15 to K-53 with a bypass around Mulvane just west of downtown. Additionally, a new grade separated rail crossing would be located north of downtown.

The traffic analysis indicated that the project would have little impact on trip route choice within the Study Area and would provide negligible capacity benefits, but it would shorten travel time through Mulvane. However, there are project considerations that travel demand modeling cannot capture such as route continuity, political reasoning, and local preferences. The MAR would also provide access to approximately 400 acres of undeveloped property west of downtown Mulvane that are planned for future industrial uses. Expanding Mulvane's industrial base could be a tremendous boost to the local economy.

The benefits of the proposed rail crossing cannot be overstated. It would provide the only grade separated crossing of this high volume BNSF line within 35 miles south of Wichita. The extra routing option would minimize travel delay for local motorists and emergency responders who would otherwise be stopped by passing trains. Eliminating travel delay helps to reduce fuel consumption, lessen vehicle emissions, increase productivity, and improve safety – all of which benefit community health and prosperity. Additionally, the rail crossing hazard index will be significantly reduced as a result of much lower traffic volume using the existing at-grade crossing.

Generally, concept studies are required for new highway alignments. After purpose and need have been demonstrated, NEPA documentation is required for state and/or federal construction funding. For this reason, it is recommended that a study be conducted for the MAR project that would provide the degree of analysis typically required to determine a project's feasibility. This normally

consists of a comprehensive assessment of project engineering considerations, possible benefits, and potential impacts including:

- Examination of multiple alignment alternatives with traffic capacity, operational, and safety analyses
- Identification of a preferred alternative with:
 - Clearly defined purpose and need statement
 - Preliminary design concept including:
 - Typical cross-section(s) and interchange/intersection configurations
 - Necessary improvements such as bridges, intersections, etc.
 - Detailed cost estimate
 - Preliminary assessment of environmental conditions and impacts
 - Economic analysis

The additional analyses will likely be required before KDOT would commit resources to the design, construction, and designation of the MAR as a Kansas State Highway (K-53). Mulvane should fund such a study and hire a qualified consultant. Demonstrating this level of commitment to the project might be viewed favorably when regional, state, and federal programming decisions are made. Otherwise, the city of Mulvane could utilize the Local Consultation process to seek KDOT participation in funding an appropriate study.

Alternatively, Mulvane could pursue the MAR as a city arterial street using a combination of WAMPO and local funding/implementation mechanisms. It has been included in the Metropolitan Transportation Plan (MTP) 2035 and can be assumed to have met WAMPO's threshold for regional significance. Existing project information should suffice to proceed with implementation of the MAR as a city arterial roadway after minor revisions to the proposed alignment. It should be noted that federal funding through WAMPO might still be contingent upon additional study.

Local land use plans support the MAR project and it has many potential benefits to offer. However, given the lack of necessary data on benefits and impacts, this Plan cannot provide recommendations about MAR project implementation.

Vehicular Wayfinding Signage

The I-35 interchange at Exit 33 was modified to provide ample casino access while accommodating traffic destined for other locations. The retrofit design is an innovative solution to an unconventional situation. The facility meets current design criteria and signage/pavement marking standards, but navigation can be difficult for drivers unaccustomed to complex interchange configurations.

Stakeholder discussions and field observations also suggest driver confusion in selecting a casino entrance from US-81 and K-53. Erratic driving behavior associated with this confusion may influence traffic safety and operations

on US-81 and K-53. Enhanced wayfinding signage could minimize driver confusion, which would help improve traffic flow and travel safety.

Bicycle & Pedestrian Facilities

The Quad Cities Plan identifies 95th St. South as a potential bicycle/pedestrian route. Other plans and initiatives advocate for an interconnected regional bicycle and pedestrian network. These types of improvements would provide additional travel mode options and recreational opportunities along with corresponding economic and health benefits.

There could be localized bicycle and pedestrian demand at future commercial activity nodes. This would depend upon development density and the specific mix of uses. For example, truck stops and motels are frequently developed on properties near similarly situated casinos. Many truckers and travelers prefer to park once during a rest stop and walk to access nearby goods and services.

In light of these factors, the following are recommended:

- Identify appropriate non-highway system bicycle/pedestrian routes to the immediate casino vicinity and provide connections to the regional system if and when it expands into the Study Area.
- Local agencies should assess bicycle/pedestrian demand during the development process to the degree determined appropriate by local governing bodies. Possibilities may include:
 - Site design guidance to prospective developers.
 - Adding bicycle/pedestrian requirements into development regulations.

Public Transit Service

The CATP Study Area and Kansas Star Casino are not currently served by a fixed route transit provider. However, local party bus operators have found a market serving casino patrons and will probably continue to meet this demand. Future public transit demand will likely be limited to area employees. Route startup and operational costs would yield a poor return on investment. Therefore, public transit service expansion within the Study Area has not been a consideration of this Plan's analysis. Demand for public transit service should be periodically assessed and expanded into the Study Area when deemed feasible by coordinating agencies.

Ongoing Stakeholder Coordination

Continued coordination between KDOT and all stakeholders is critical to the successful implementation of recommended improvements. As further study takes place, preferred options are identified and individual projects designed, input should be actively sought from project partners, other local agencies and area residents who may be affected. All feedback provided should be given due consideration during the programming and design processes.

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

Exhibit 6: Concept Improvement Plan (US-81/87th St. South & 95th St. South Intersections)

NOTES:

- The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
- Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

LEGEND

EXISTING CONDITIONS

	Right-of-Way Line		No Passing Zone
	Highway Access Control		Passing Allowed One Direction
	Outside Lane Marker		Passing Allowed Both Directions

INTERSECTIONS

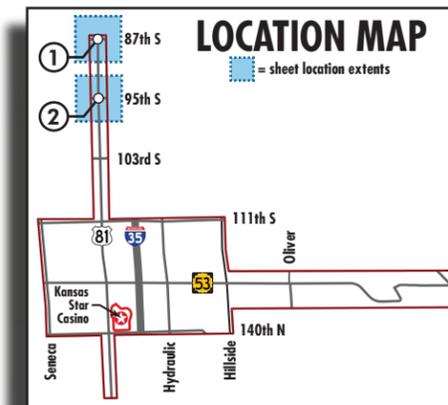
	Traffic Movement		Stop Sign Location
	Signalized Intersection		

IMPROVEMENTS

	Modified Road Alignment		Roundabout Location

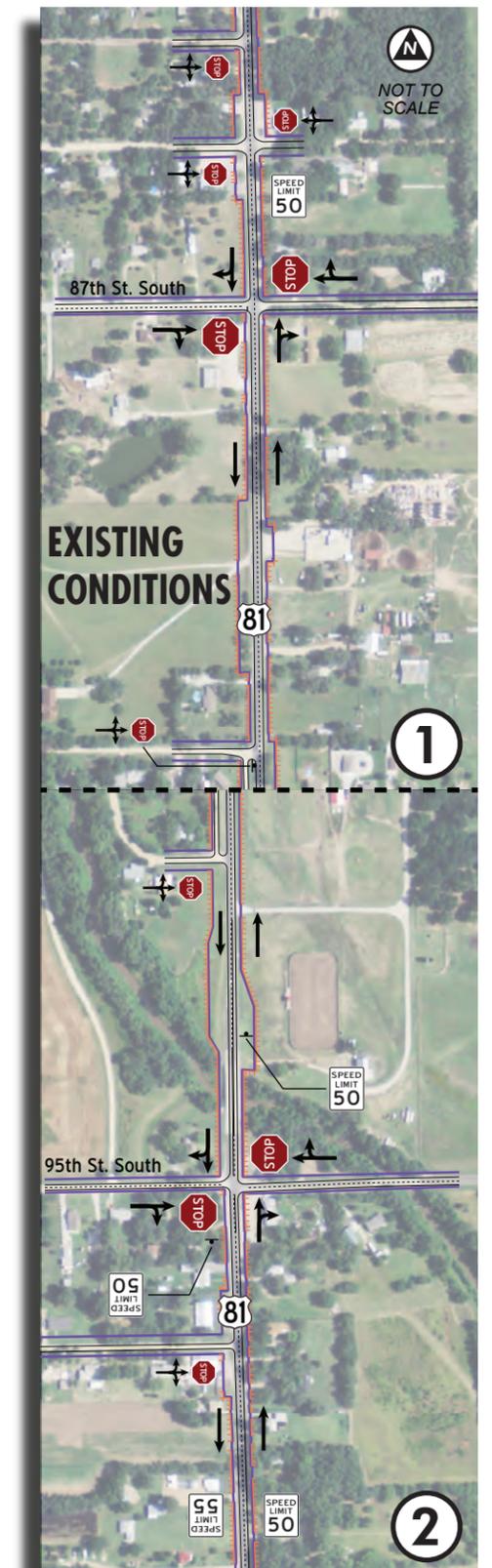
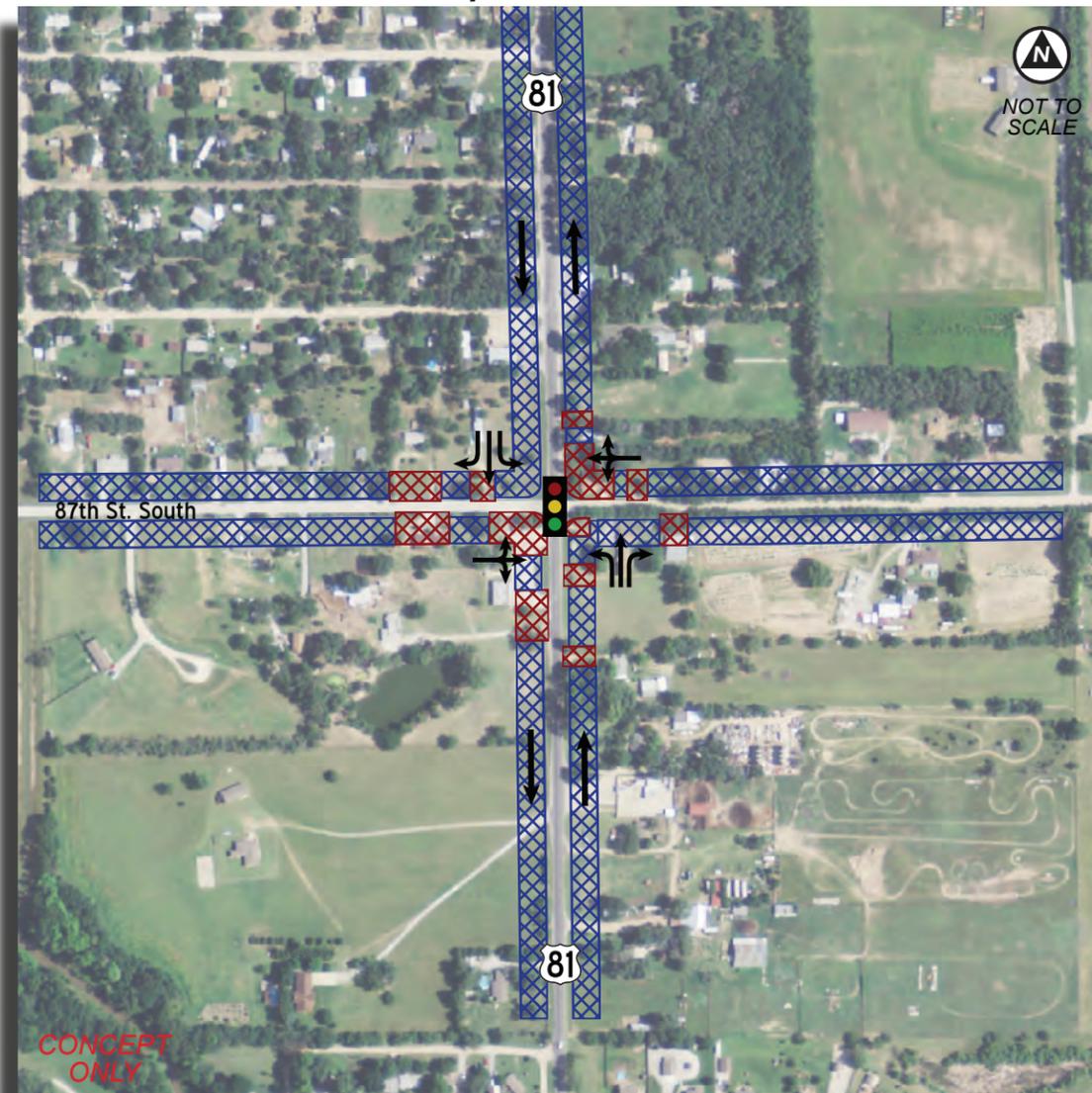
ACCESS MANAGEMENT

	Future Highway Access Control
	Access Closure or Consolidation
	Develop Site with Good Circulation



LOCATION 1 - US-81/87TH ST. SOUTH INTERSECTION

LOCATION 2 - US-81/95TH ST. SOUTH INTERSECTION



CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

Exhibit 7: Concept Improvement Plan (US-81 Mid-mile between 111th St. South & K-53)

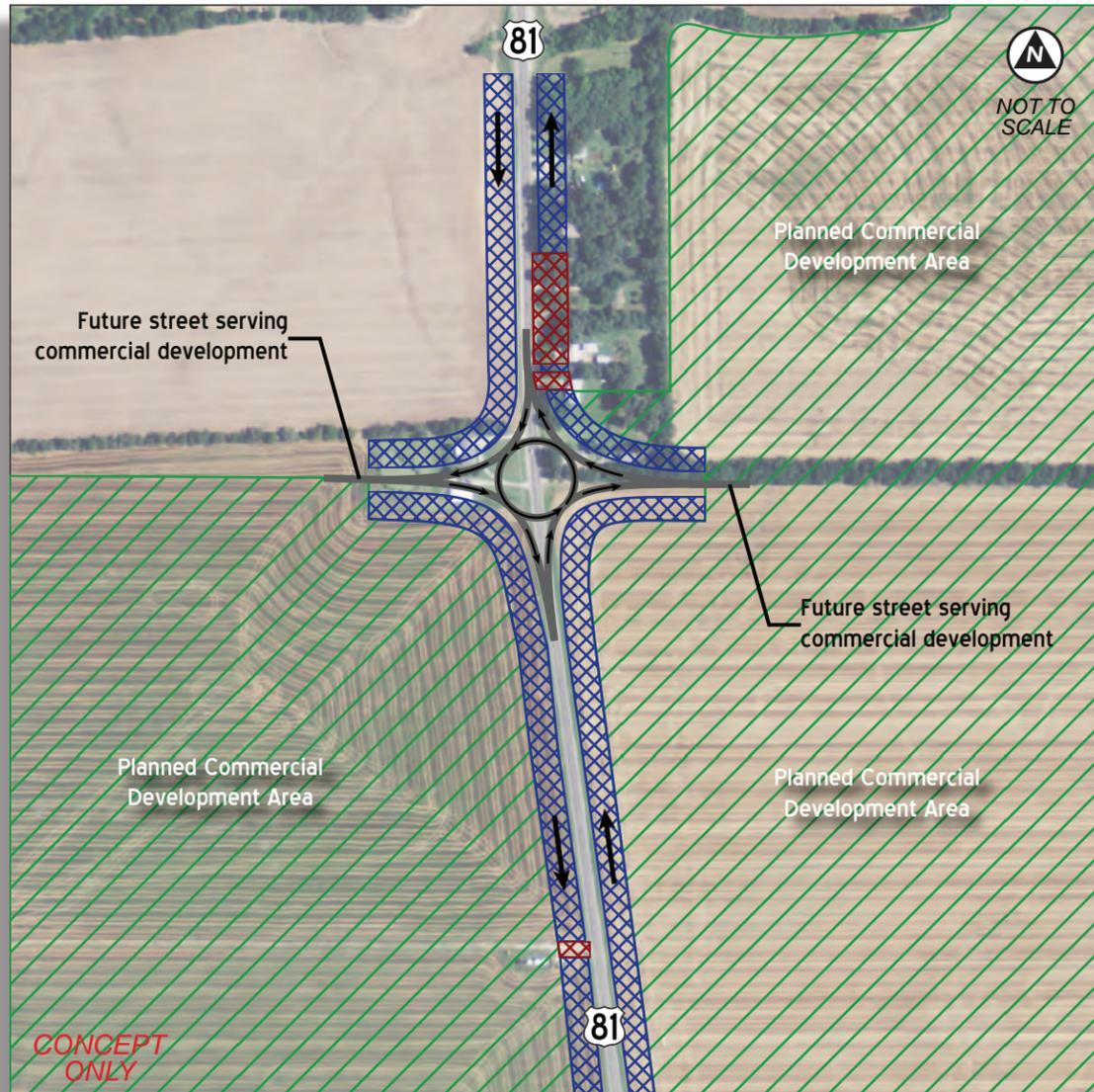
NOTES:

1. The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
2. Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

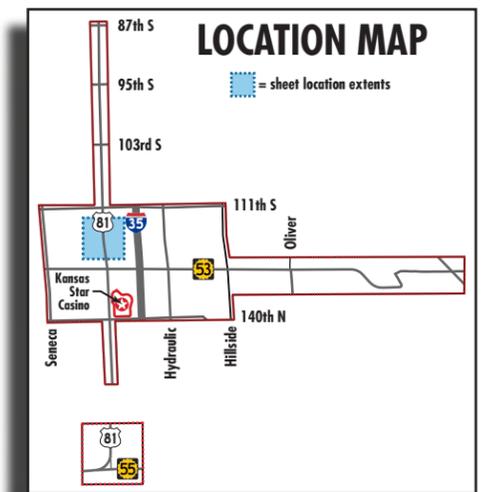
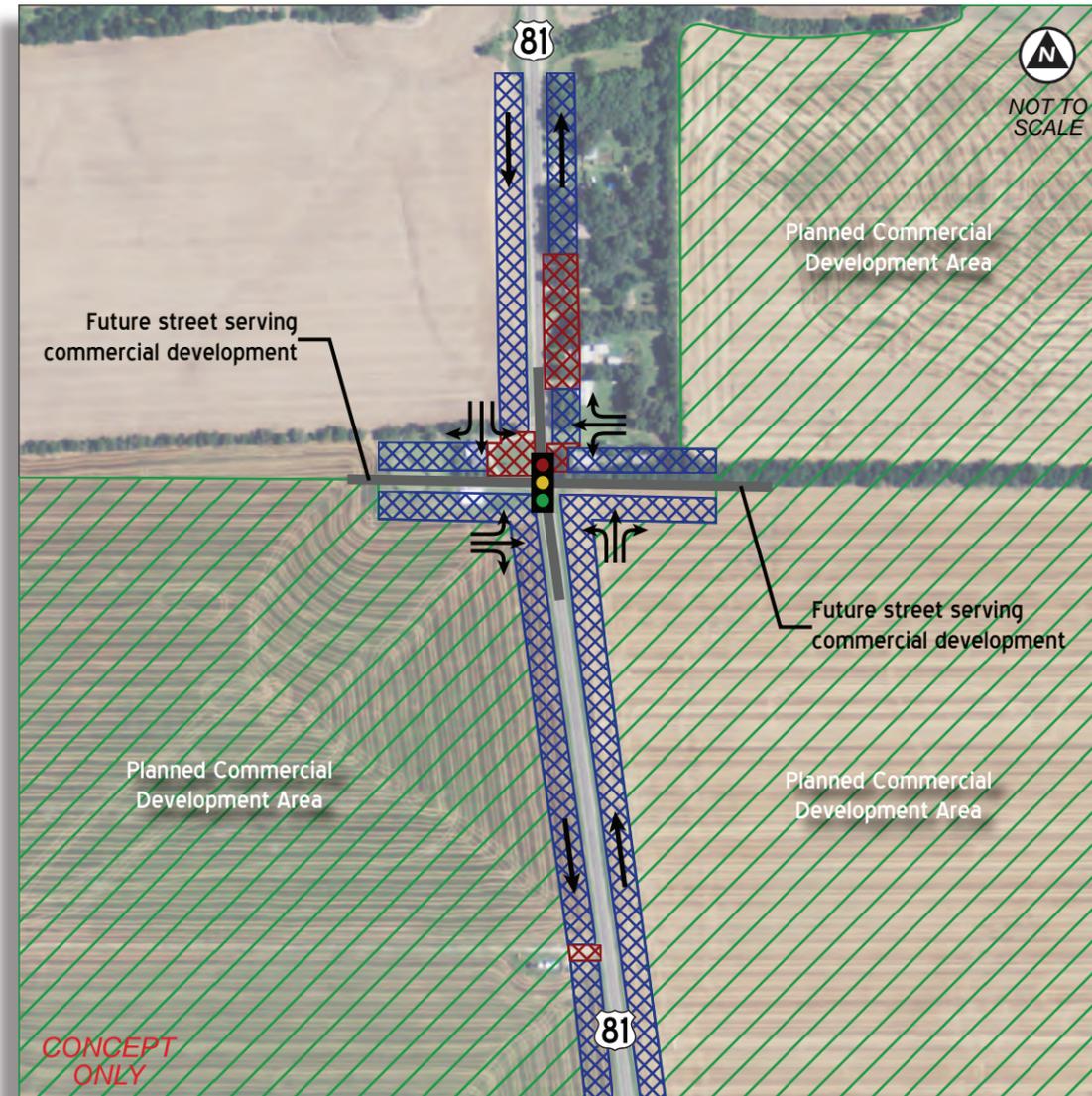
EXISTING CONDITIONS		INTERSECTIONS		IMPROVEMENTS		ACCESS MANAGEMENT	
	Right-of-Way Line		No Passing Zone		Traffic Movement		Future Highway Access Control
	Highway Access Control		Stop Sign Location		Roundabout Location		Access Closure or Consolidation
	Outside Lane Marker		Signalized Intersection		Modified Road Alignment		Develop Site with Good Circulation
	No Passing Zone		Passing Allowed One Direction		Passing Allowed Both Directions		



OPTION 1 - ROUNDABOUT



OPTION 2 - TRAFFIC SIGNAL



CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

Exhibit 8: Concept Improvement Plan (Casino Vicinity Recommendations)

NOTES:

1. The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
2. Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

LEGEND

EXISTING CONDITIONS

- Right-of-Way Line
- Highway Access Control
- Outside Lane Marker
- No Passing Zone
- Passing Allowed One Direction
- Passing Allowed Both Directions

INTERSECTIONS

- Traffic Movement
- Stop Sign Location
- Signalized Intersection

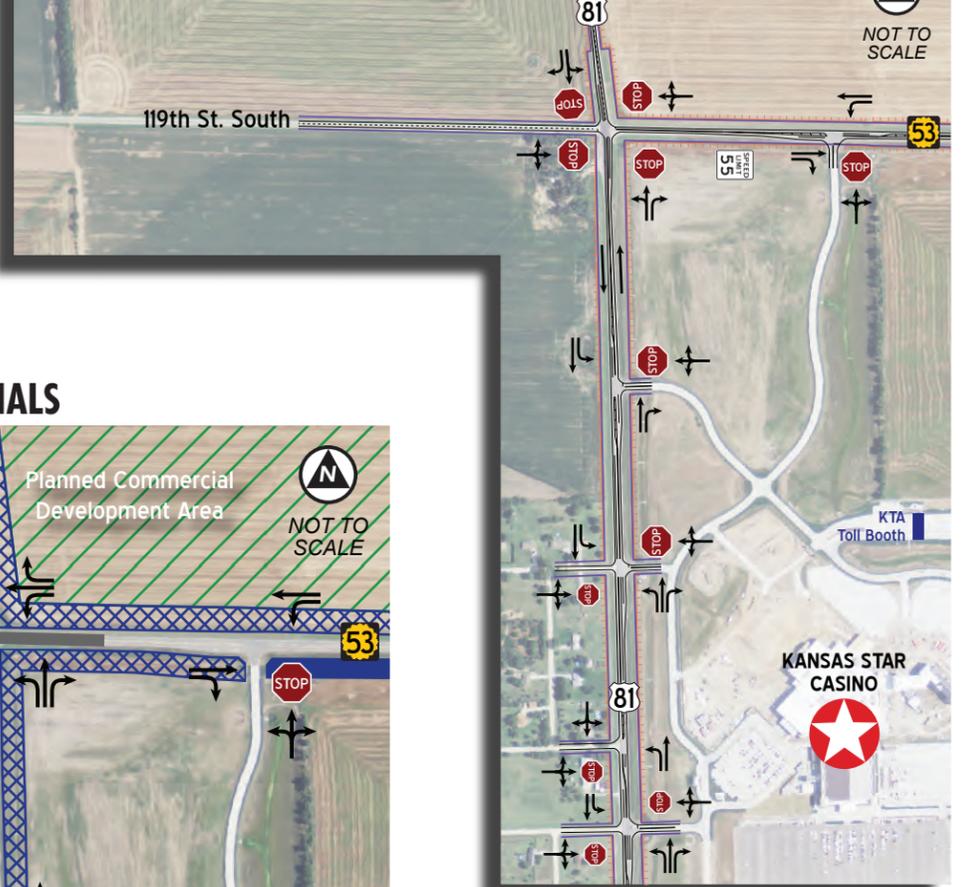
IMPROVEMENTS

- Modified Road Alignment
- Roundabout Location

ACCESS MANAGEMENT

- Future Highway Access Control
- Access Closure or Consolidation
- Develop Site with Good Circulation

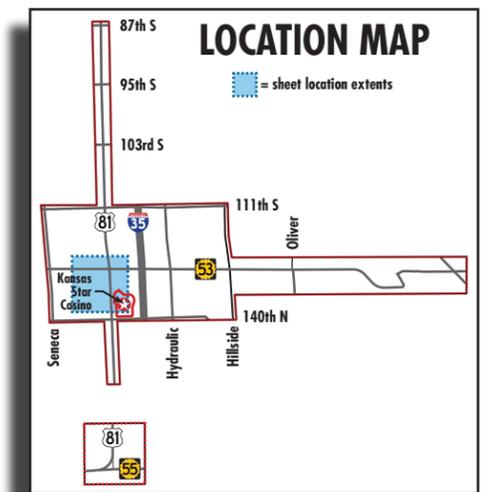
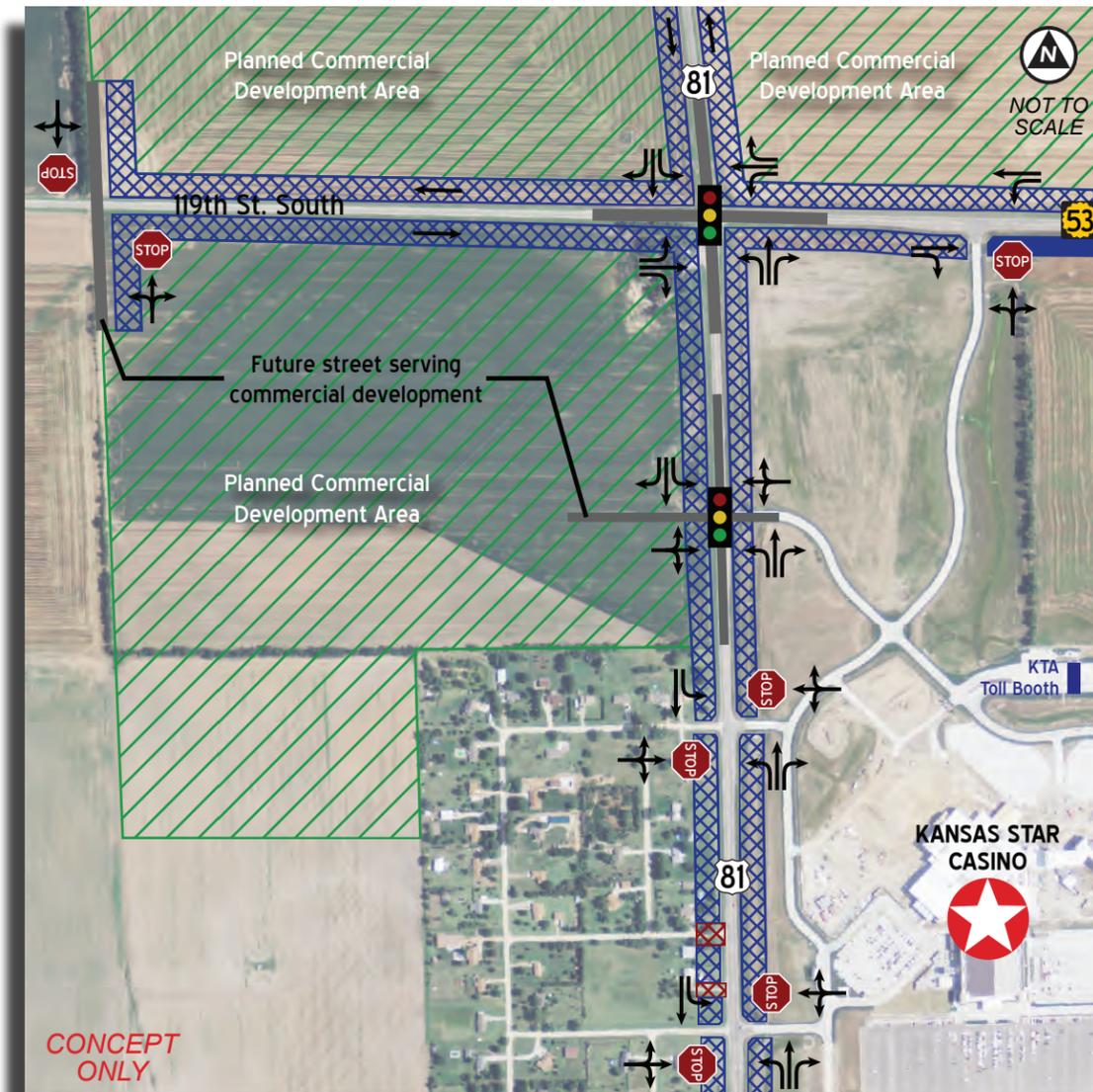
EXISTING CONDITIONS



OPTION 1 - ROUNDABOUTS



OPTION 2 - TRAFFIC SIGNALS



CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

OPTION 1 - ROUNDABOUT



OPTION 2 - T-INTERSECTION

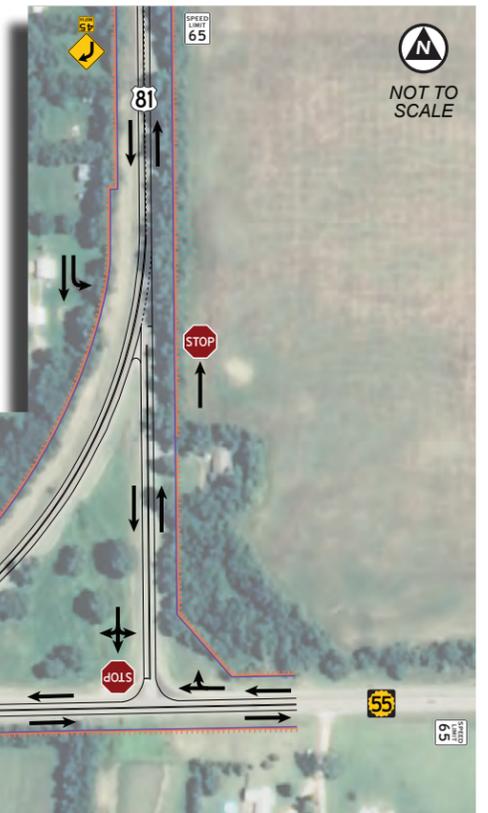
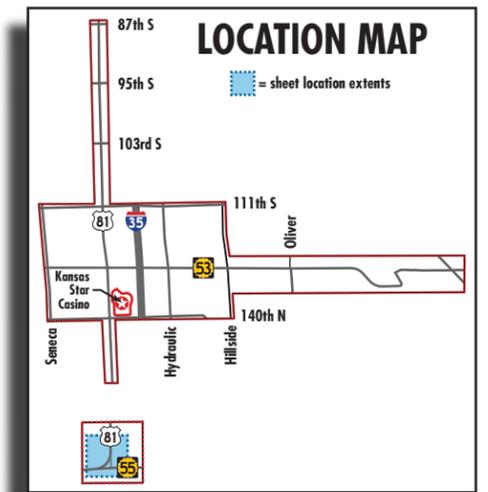
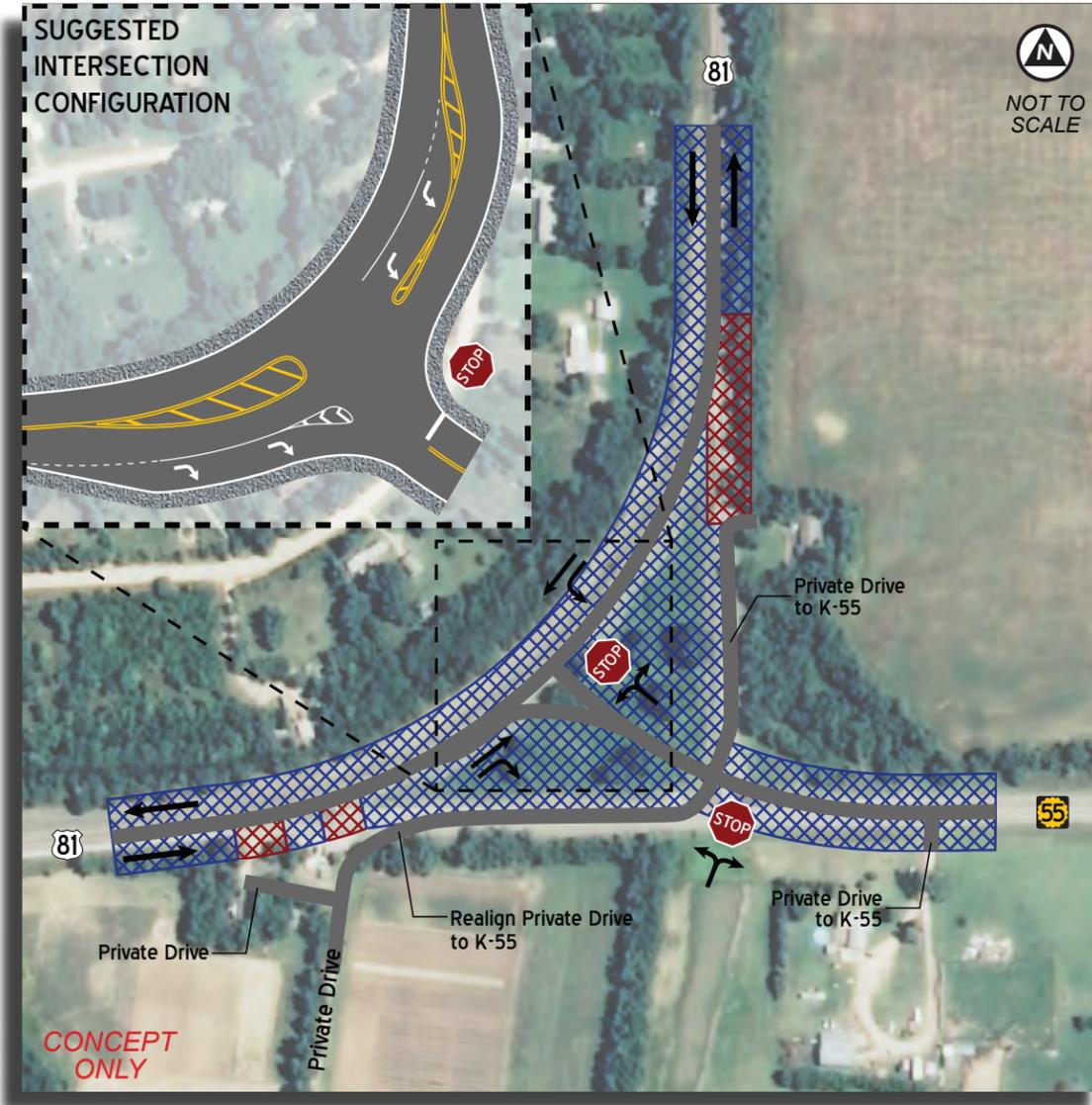


Exhibit 9: Concept Improvement Plan (US-81/K-55 Intersection)

- NOTES:
1. The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
 2. Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

EXISTING CONDITIONS		INTERSECTIONS		IMPROVEMENTS		ACCESS MANAGEMENT	
	Right-of-Way Line		No Passing Zone		Modified Road Alignment		Future Highway Access Control
	Highway Access Control		Passing Allowed One Direction		Roundabout Location		Access Closure or Consolidation
	Outside Lane Marker		Passing Allowed Both Directions		Traffic Movement		Develop Site with Good Circulation
			Stop Sign Location		Signalized Intersection		

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS

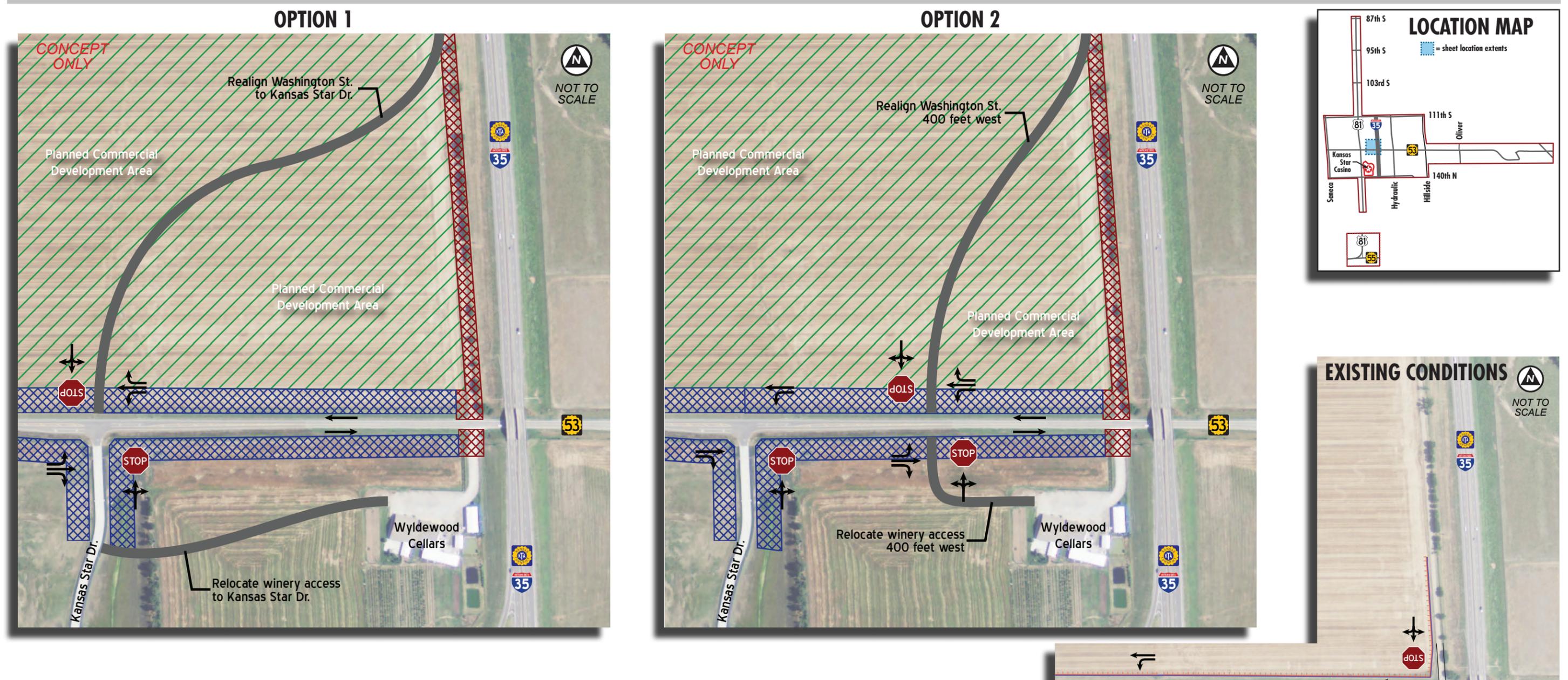


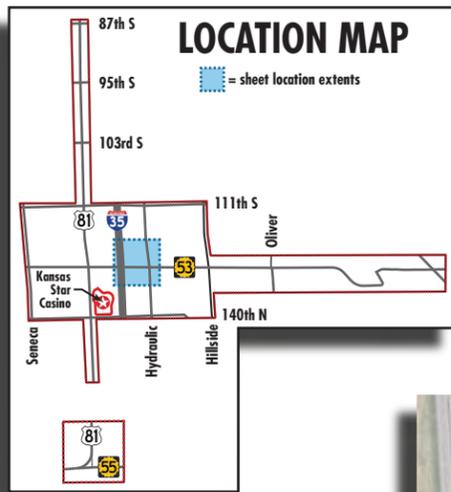
Exhibit 10: Concept Improvement Plan (K-53/Washington St. & Winery Intersection)

NOTES:

- The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
- Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

EXISTING CONDITIONS		INTERSECTIONS		IMPROVEMENTS		ACCESS MANAGEMENT	
	Right-of-Way Line		No Passing Zone		Modified Road Alignment		Future Highway Access Control
	Highway Access Control		Traffic Movement		Roundabout Location		Access Closure or Consolidation
	Outside Lane Marker		Stop Sign Location		Signalized Intersection		Develop Site with Good Circulation
	Passing Allowed One Direction						
	Passing Allowed Both Directions						

CHAPTER 7: TRANSPORTATION RECOMMENDATIONS



EXISTING CONDITIONS		INTERSECTIONS		IMPROVEMENTS		ACCESS MANAGEMENT	
	Right-of-Way Line		No Passing Zone		Traffic Movement		Modified Road Alignment
	Highway Access Control		Stop Sign Location		Roundabout Location		Future Highway Access Control
	Outside Lane Marker		Signalized Intersection		Access Closure or Consolidation		Develop Site with Good Circulation
	No Passing Zone		Passing Allowed One Direction				
	Passing Allowed One Direction						
	Passing Allowed Both Directions						

Exhibit 11: Concept Improvement Plan (K-53/KTA Connector & Hydraulic Intersections)

NOTES:

- The recommend improvements are concepts intended for illustrative purposes only. Actual improvements will depend on engineering considerations at the time of design and construction.
- Existing conditions are based on as-built drawings and site observations. Field surveys were not conducted as part of this project.

RECOMMENDED IMPROVEMENTS



EXISTING CONDITIONS



CHAPTER 8: PLAN IMPLEMENTATION

Benefits cannot be derived from the transportation recommendations unless and until they are implemented. Implementation may be accomplished through a variety of strategies. This chapter¹ contains a listing and explanation of the numerous means for implementing the Plan that have been authorized by Kansas statutes.

INTERGOVERNMENTAL COORDINATION

The local and regional project partners together with KDOT should encourage continued coordination on access management and transportation issues in the future. The US-81/K-53 Casino Area Transportation Plan is a good example of what can be accomplished when governmental agencies coordinate to achieve common goals that benefit their communities. The momentum of this planning effort should be carried into the future. As each of these agencies move forward with plans, regulations, and projects, continued consultation should occur. This will help enable meeting the Plan's goals and will minimize negative development impacts on Study Area roadways.

INTERLOCAL COOPERATION AGREEMENT

An effective way to facilitate continued intergovernmental coordination is an Interlocal Cooperation Agreement. Through the exercise of home rule, by entering into an interlocal cooperation agreement, pursuant to K.S.A. 12-2901 et seq., and by utilizing powers granted to cities and counties by Kansas statutes, significant opportunities exist for cities and counties to cooperate with each other in the creation of financing strategies for the mainline highway enhancements and city connectors and local road projects within the corridor. There is potential for such cooperation in the use of financing mechanisms described in the Implementation Toolbox section.

K.S.A. 12-2901 et seq. authorizes all public agencies of the state (including KDOT) to jointly cooperate in the exercise of any power, or privileges, or authority exercised or capable of exercise by such agency, including economic development and public improvements, pursuant to an agreement in the form therein provided. See also, K.S.A. 75-5023.

K.S.A. 12-2904 (f) dictates that each interlocal agreement, prior to it taking effect, shall be submitted to the attorney general for a determination of whether or not the agreement is in proper form and compatible with the laws of the state. In addition, K.S.A. 12-2905 requires that prior to the interlocal agreement taking effect, it be filed with the Register of Deeds of every county in which each agency signatory to the agreement is located. The agreement also must be filed with the Office of Secretary of State.

¹ This chapter is based on content provided by KDOT that was prepared by another consultant. The original content was revised to meet project needs.

IMPLEMENTATION TOOLBOX

Substantial effort and expense has been put into the development of this Plan. Each of the planning partners have invested resources to:

- Collect and analyze all available, relevant background information regarding the Study Area to fully understand current conditions
- Study and extrapolate projections and data that may have an impact transportation on Study Area roadways
- Reach out to all interested stakeholders to obtain input and guidance on what has occurred, what exists and what they feel should be the transportation goals for the study area into the future
- Forge a consensus among KDOT, the community partners, and interested stakeholders on a plan that captures this shared vision for enhancements to the mainline highways and adjacent local street network and the interface between the two, including the type and location of points of access within the Study Area

Successfully completing this planning effort is a major accomplishment in and of itself. The dividends which will flow to the parties from having achieved this goal are inestimable.

That being said, the Casino Area Transportation Plan is just that: A PLAN. The real purpose for doing a plan is to, through comprehensive and thorough analysis, create a guide to decision-making by all the interested parties, so that the vision and details of the plan can become reality. To make the vision of the Plan a reality, KDOT and each of the community partners within the study area must take action to implement the Plan. This section of the Plan describes a series of techniques that can be used by the partners to help turn the maps, illustrations, policies, goals, strategies, and recommendations of the Plan into the actual facility improvements envisioned by the Plan. The tools described in this section, when put into place, have the supplemental benefit of establishing additional criteria against which state, county, municipal, and utility improvement plans and private development proposals can be evaluated, as each is brought forward through time. Having these supplemental criteria in place will give all parties greater assurance that all the resources the parties put toward creation of the Plan will achieve the vision for the Study Area.

The toolbox of techniques is divided under three major headings: Land Use and Regulatory Strategies, Access Management Strategies, and Financing Strategies. Each subsection contains a variety of tools that, if implemented correctly, can help realize the goals outlined in the Plan. Coordination between KDOT and the local partners is essential since authority for some of the tools are vested in the state and the authority for others is vested in the local governments. Jurisdictional responsibility is indicated for each strategy along with its estimated extent of use by jurisdictions in the area for local plan implementation: Most (>50%) , Some (10% - 49%), or Few (<10%).

Planning & Regulatory Strategies

Comprehensive Planning (Most)

To help ensure that the land development decisions are consistent with and are made in accordance with the recommendations of the Plan, the planning partners should adopt the US-81/K-53 Casino Area Transportation Plan as a part of their comprehensive plans. K.S.A. 12-747 authorizes city and county planning agencies to adopt a comprehensive plan for the development of that community. There is specific authority to adopt area or sector plans covering only a portion of the area within a community's jurisdictional boundaries. The plan must show the commission's recommendation for the development or redevelopment of the territory included in the portion of the plan prepared. The planning commission must hold a hearing on the adoption of the this plan and make a recommendation to the governing body on its adoption. The plan does not become effective unless approved by the governing body.

The goal of a comprehensive plan is not only to serve as a guide to development for the planning commission and the governing body but also to owners and potential owners of property within the community's jurisdictional boundaries. That being the case, it is recommended that the amended comprehensive plan be posted on the city's website and at all other appropriate locations to assist in assuring that all interested parties are informed of the recommendations of the Casino Area Transportation Plan for areas included in its footprint map.

Responsible Jurisdiction: Local

Official Maps (Some)

An official map is a legally adopted map that conclusively shows the location and width of proposed roads or streets, public facilities, public areas, and drainage rights-of-way. It is also commonly referred to as a major street plan. Although the Kansas statutes do not specifically authorize cities or counties to adopt an official map, K.S.A. 12-747, in its description of the elements that should be covered in a comprehensive plan, clearly contemplates that the plan include the type of information that is traditionally included in an official map. It goes without saying that the lack of specific statutory authority to adopt an official map in no way precludes a city or county from acting pursuant to their home rule authority to do so. In addition, K.S.A. 12-765, discussed below, granting authority to cities and counties to establish building or setback lines, does authorize cities doing so to incorporate by reference an official map in the ordinance or resolution, as the case may be. The adoption of an official map as a part of the community's comprehensive plan or as a standalone document gives that community one additional point of reference and source of guidance when considering development applications relating to land that lies within the study area to determine whether the development proposed will have an impact on the improvements contemplated by the Plan.

Responsible Jurisdiction: Local

Plan Consistency (Some)

To help ensure that the community's comprehensive plan is internally consistent and therefore effectively serves as a comprehensive guide to development within the community, upon adoption or in conjunction with the adoption of the Casino Area Transportation Plan, the community should review its existing comprehensive plan to assure that other portions of the plan support and are not in conflict with the recommendations of the CATP. If the community identifies inconsistencies, it should revise and readopt the comprehensive plan with revisions designed to eliminate those inconsistencies using the procedures outlined for the adoption of a comprehensive plan.

Responsible Jurisdiction: Local

Utility Planning (Most)

Utilities necessary to support development will be constructed within the Study Area. It is critical that these utilities be located at places that are consistent with the Plan, so they will not have to be relocated upon construction of enhancements to the mainline highway at future dates. The Study partners should, in coordination with all providers of utility services within its corporate boundaries, prepare and continually update a utility master plan. These utility master plans must be carefully coordinated with the CATP to ensure consistency between the two. The Study partners should carefully evaluate the Plan, when making decisions about the location of new utilities and related easements. In addition, the Study partners should establish a regular point of interface with each utility provider to ensure coordination between the parties in ongoing planning efforts and land acquisition and placement decisions.

Responsible Jurisdiction: KDOT/Local

Capital Improvement Program (Most)

The Capital Improvement Program (CIP) is a short- to medium-term document developed by local jurisdictions that provides a plan for capital needs and a plan to finance the projects to meet capital needs. The purpose is to identify projects to be completed as well as ensure the projects can be funded. Since the recommendations in this Plan are on state routes, coordination with the KDOT will be required, as the routes are their responsibility.

Responsible Jurisdiction: Local

Conformity of Public Improvements (Most)

K.S.A. 12-748 provides that whenever a planning commission has adopted a comprehensive plan for an area, no "public improvement, public facility or public utility," of a type covered by the recommendations of that plan, may be constructed without first being submitted to and approved by the planning commission as being in conformity with the plan. Public entities with plans

for construction of these improvements, facilities and utilities should consult with the representative of cities and counties with adopted comprehensive plans early in that entity's decision-making process and timely submit those plans to the appropriate planning commissions for this determination. This requirement applies to any public entity that is intending to do this type of construction within the jurisdictional boundaries of a city or county. This is an important way to ensure due consideration is given to the recommendations of the CATP once it is made a part of a community's comprehensive plan. Cities and counties that learn of plans for construction of this type, by another public entity within their boundaries, should be diligent in contacting the entity to make sure they are aware of this obligation and then to facilitate the contemplated review, thereby helping to ensure the Plan is fully considered in these situations. It is important to note that the governing body of the entity proposing this construction can over-ride a negative recommendation of a local community planning commission, but even in that instance, an important opportunity for review of the consistency between the proposed construction and the CATP by the parties is captured.

Responsible Jurisdiction: KDOT/Local

Development Moratoria (Few)

A public sector entity may, through passage of a development moratorium, temporarily halt the processing of applications for all or a specified type of development until a governmental activity is completed, such as the adoption of a plan or the passage of a revised ordinance on a specified subject. The Supreme Court has held that a reasonable moratorium fulfills a legitimate public purpose and is not per se a taking.

As vigilant as the planning partners may be at incorporating the CATP into local comprehensive plans and utilizing the regulatory strategies to implement the Plan, situations are bound to arise where development pressures become unmanageable. In those situations, development moratoria are a very effective tool to help stem those pressures while the community determines what approach will be most effective; be it an amendment to the comprehensive plan or passage of an ordinance/resolution establishing a new or updated regulatory implementation technique, such as an overlay district. The moratorium ceases the processing of applications during a legislatively established period of time needed to prepare and adopt strategies the community determines will best address the circumstance. It is important to note that adoption of moratoria is generally considered to be a zoning action. Accordingly, that ordinance/resolution must be passed pursuant to the hearing and notice requirement of Article 7 of the Kansas Statutes. For that reason, it is critical that communities act quickly to get a moratorium in place once a situation calling for a "time out" is identified. One way to close the window on the rush of applications that might result from notice of the consideration of a moratorium ordinance is for the community's governing body to adopt a resolution directing staff to stop accepting applications until the moratorium ordinance takes effect. The

authority for adoption of a resolution of this type is found in the "pending ordinance" doctrine, which has been accepted by the courts of most states.

Responsible Jurisdiction: Local

Zoning (Most)

Zoning is one of the most prevalent and effective mechanisms for implementing a comprehensive plan. Zoning is a process utilized by local governments to classify land into areas and districts. These areas are generally referred to as "zones," and impose, in each area and district, restrictions related to building and structure designs, building and structure placement, and uses to which land, buildings, and structures within these districts may be put. This includes setbacks and height, lot coverage, and impervious cover restrictions. The authority to establish setbacks from rights-of-ways is not specifically mentioned, but is derived from the authority to set sizes of buildings, the percentage of each lot that may be occupied and the size of yard and other open space. The implicit authority to establish setbacks as a part of zoning district restrictions is located in K.S.A. 12-755. These statutory provisions provide authority to establish setbacks for more than just buildings. They may apply to any structure within the designated setback. Traditionally, however, though established at depths adequate to preserve rights-of-way for the local street network system, the normal front and side yard setbacks included in zoning ordinances and subdivision regulations are not generally sufficient in depth to preserve rights of way that may be necessary for enhancement to a mainline highway. Zoning ordinances may also make provisions for certain uses to be established community-wide or in individual zones only by issuance of a special or conditional use permit. Rezoning of parcels that have been previously zoned may be initiated by the local community or by a property owner.

Responsible Jurisdiction: Local

Through the adoption of zoning ordinances, which are carefully tailored to implement the strategies and policies of the Casino Area Transportation Plan, development within the Study Area can be effectively managed to ensure successful implementation of the Plan. K.S.A. 12-755 and 12-756 authorize both cities and counties to adopt zoning ordinances, and K.S.A. 12-757 authorizes the rezoning of properties in those instances where changing a property's zoning classification is advisable or necessary to adapt original zoning to current situations.

If a rezoning application proposes a zoning classification that is determined to have the potential of adversely impacting the Study Area, copies of the application, along with the staff report, should be provided to KDOT for input, at the same time any other affected party is provided notice of the hearing on the application.

CHAPTER 8: PLAN IMPLEMENTATION

K.S.A. 12715b authorizes cities, with a couple of exceptions and under certain conditions, to adopt zoning regulations applicable to land located outside of its corporate limits, but only within three miles of those limits and only if the county has not adopted zoning regulations applicable to that area of the county. Written notice of a city's intent to adopt zoning outside its limits must be provided to the appropriate board of county commissioners. Similarly, each county that proposes to adopt zoning regulations affecting property within three miles of the corporate limits of a city must give written notice of its intent to that city's governing body.

Arguably, the most important Kansas Supreme Court case dealing with zoning is *Golden v. the City of Overland Park*. *Golden* sets out factors that planning commissions and governing bodies may consider when deciding whether to approve or deny a zoning application. One of those factors is consistency with the comprehensive plan. Each community within the Study Area, when acting on a development application related to land that lies within the Study Area, should consider whether the development proposed by that application is consistent with this Plan, as adopted into its comprehensive plan.

Site Plans (Some)

The term "site plan" is used here to describe a plan submitted during the course of the development approval process. It is also designed as a mechanism to inform the decision makers of the applicant's proposal for development of a property. The site planning process is generally a one step process that is required of developers that are not required to rezone their property prior to the issuance of a building permit. To institute this mechanism, the community would need to revise its land development codes to require that, in instances of proposed developments, where some other plan approval process is not required prior to issuance of a building permit, the applicant must submit a site plan for review and approval prior to building permit issuance. It would be common for certain types of development to be excluded from the site plan approval process, such as development of a single family house or similar smaller type developments that will have a minimal impact on facilities and services or on the landscape.

The usual site plan would be described as a plan for one or more lots on which is shown the existing and proposed conditions of the lot, including topography, vegetation, drainage, floodplains, wetlands, and waterways; landscaping and open spaces; walkways; means of ingress and egress; circulation; utility services; structures and buildings; signs and lighting; berms, buffers, and screening devices; surrounding development; and any other information that reasonably may be required for an informed decision to be made by the approving authority.

It is not uncommon for the site planning process to be divided formally or informally into two parts. In these circumstances, an initial submittal, often called a concept plan, is made to the technical staff for informal review. The

applicant meets with the approving authority's technical staff to discuss the plan and exchange views on what the applicant is proposing and what the technical staff believes will be acceptable to the approving authority. It can also serve as an opportunity to fine-tune the plan for formal submittal. Once that process is complete, a formal site plan, as described above, or a preliminary development plan is submitted for staff review and report.

The nature of the approval required for a site plan can vary greatly, depending on the expertise of staff and the appetite of the community to delegate approval authority to an administrative official. So, for example, a community could decide to vest plan approval authority for some categories of development in an administrative official, other categories of development in its planning commission and retain to the governing body still another category of development approvals. One would expect that administrative approval would be available for those categories of development that are determined to be of the least potential community impact, moving up to governing body approval on those that could have far reaching impacts, such as development at certain locations (key intersections) within the Study Area.

If the site plan posed in the application is determined to have the potential of adversely impacting the study area, copies of the application, along with the staff report, should be provided to KDOT for input, at the same time any other affected party is provided notice of the hearing on the application. If no hearing is required, this notice should be provided to KDOT in enough time before action on the application takes place to allow meaningful KDOT input.

Responsible Jurisdiction: Local

Subdivision Regulation (Most)

The subdivision of land through platting is the second most common method used by communities to manage the development of property within its jurisdiction. The control of the division of a parcel of land is effectuated by adopting subdivision regulations by ordinance or resolution that requires development be in accordance with set design standards and procedures adopted locally. K.S.A. 12 – 749 grants cities and counties the authority to adopt subdivision regulations. Subdivision regulations may include, but need not be limited to: 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 any other services, facilities and improvements deemed appropriate. It is through the consideration and action on plats that communities are able to require that the distances which structures are set back from rights-of-way (a very important tool for preservation of rights-of-way for mainline highway), the layout of building lots, the points of ingress and egress from the lot(s) (effective in helping to manage access) and the public improvements associated with those lots do, in fact, conform to locally established standards, including adopted plans, such

as Transportation Plans. In some locations, subdivision regulation and plat approval may actually be the most significant regulatory tool for managing development. In some more rural areas, it is more common for counties to have adopted subdivision regulations than to have adopted zoning. In those unincorporated areas, there would be no local legislative authority to manage development through zoning restrictions. Accordingly, subdivision regulation would be those counties' primary land management tool.

Subdivision regulations usually specify what improvements the subdivider will be required to provide and the standards to which the improvements need to be constructed. A plat is a map prepared by a registered civil engineer or licensed land surveyor showing the boundaries and locations of individual properties and the streets of the proposed subdivision. The plat generally also shows land to be dedicated to a public sector entity for streets and easements for public utilities. K.S.A. 12-749 authorizes a planning commission to adopt and amend regulations regarding the subdivision of land, including payment of a fee in lieu of dedication of land. This same section also authorizes a county planning commission to establish subdivision regulations. Much like zoning, a city may adopt subdivision regulations that control the subdivision of land outside of its corporate boundaries, but only within three miles of that limit or one half the distance between two cities, whichever is less. Similar written notice requirements apply. The regulations must be considered by the planning commission at a public hearing, and the commission must forward its recommendation to the governing body for its approval. K.S.A. 12-750 lays out a process that must be followed where a city desires to adopt extraterritorial subdivision regulations and the county has its own regulations in effect as to that area. That process can result in the creation of a joint city/county committee for subdivision regulation.

K.S.A. 12-752 establishes the procedure for the consideration of and action on plats. Each plat must be submitted to the planning commission, which determines if the plat conforms to the subdivision regulations. If it finds that it does, it notifies the owners of that fact and endorses that fact on the plat. A dedication of land for public purposes must be accepted by the governing body before it takes effect.

Notices should be placed on plats prior to their recording with Registers of Deeds to help ensure that prospective purchasers of properties, which are included in the geographic area covered by the Transportation Plan, are informed of the ramifications on those properties of being within an the area covered by the Transportation Plan. In addition, if the preliminary plat application is determined to have the potential of adversely impacting the Corridor, copies of the application, along with the staff report, should be provided to KDOT for input, at the same time any other affected party is provided notice of the hearing on the application.

Responsible Jurisdiction: Local

CHAPTER 8: PLAN IMPLEMENTATION

Building Permits (Most)

The same section of Kansas Statutes discussed immediately above, prohibits the issuance of a building permit for the use or construction of any structure on any platted lot in an area governed by subdivision regulations, except in the manner provided by that section. It further authorizes subdivision regulations adopted by cities and counties to provide a procedure for the issuance of building permits that takes into account the need for adequate street rights-of-way, easements, improvements of public facilities and zoning regulations, if in existence.

The issuance of a building permit is obviously the last step in the typical development approval process. Although courts hold that a building permit must be issued upon submission of a complete application, if all code provisions governing the process for building permit issuance have been fulfilled, this does not mean that communities cannot creatively incorporate building permit requirements into their governing code provisions. For example, it is common for the issuance of a building permit to be conditional upon the payment of a legislatively imposed fee, such as an impact fee.

In cities or counties that have not adopted zoning or subdivision regulations, local regulations governing the issuance of building permits may not only be the last step, but also the first step in the development approval process, thus markedly increasing the importance of this tool in the arsenal of techniques a community may employ to effectively manage land development. Even in communities that have adopted one or both regulatory tools, the procedure for the issuance of building permits still may play a very a critical role. K.S.A. 12-751 authorizes cities to adopt and enforce building codes outside that city's limits and allows compliance with subdivision regulations to be a condition of the issuance of a building permit.

Responsible Jurisdiction: Local

Variances (Most)

Kansas communities have authority to grant variances from the specific terms of the zoning restriction whenever doing so is not contrary to the public interest and where, due to special conditions, local enforcement of the provisions of the regulations in an individual case results in unnecessary hardship. K.S.A. 12-759. The board of zoning appeals has the authority to grant a variance to area and setback regulations applicable to that property. The grant of a variance from district restrictions, such as parking requirements and impervious cover requirements, may be an effective way to allow an important development proposal to proceed with minor modifications that keep it out of necessary rights-of-way and behind setback lines. At the same time, the grant of some variances could adversely impact the recommendations of the Plan. Therefore, it is recommended that the board of zoning appeals consult the Casino Area Transportation Plan, as incorporated into its comprehensive plan,

when considering any request for a variance to ensure that the decision is not in conflict with the Plan. Also, if the variance proposed is determined to have the potential of adversely impacting the Study Area, copies of the application, along with the staff report, should be provided to KDOT for input, as other affected parties are provided notice of the hearing on the application.

Responsible Jurisdiction: Local

Notice of Applicability of Plan (Few)

One tool to help ensure that individuals who own property within the Study Area and who are considering purchase and/or development of that property are aware that the land is included in the area covered by the Casino Area Transportation Plan is for the Study partners to require that all plats approved by them 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 the US-81/K-53 Casino Area Transportation Plan, adopted by the Kansas Department of Transportation on _____, the City of (insert city name), Kansas on _____, ___ and (Sedgwick or Sumner) County, Kansas on _____, ____, recorded in the Register of Deeds for (Sedgwick or Sumner) County, Kansas, in Book _____, at Page _____."

Another way to help ensure that those interested in developing land within the study area are aware of the Plan, is for project partners to amend all their development applications to highlight the existence of special planning areas in the city or county, including the areas covered by the Casino Area Transportation Plan.

This could be handled informally through an internal process established wherein all individuals who request a development application are routinely asked by staff the location of the property that will be the subject of the application to allow the staff member to inform the potential applicant when the proposed development is located in the Study Area. Alternately, it could be handled more formally by inserting a line on all applications with a space to be filled in identifying parcels covered by the Casino Area Transportation Plan. The latter is the recommended approach, as it avoids reliance on, what could be, revolving staff to ensure that knowledge of the relevance of the Plan is consistently imparted to applicants. That being said, development application forms cannot always be changed immediately, so the informal process may be employed until the opportunity arises to make the formal change.

Entities or persons interested in land development within the Study Area may also become informed of the existence of the Plan as a result of the requisite filing of the Interlocal Cooperation Agreement (entered into among all parties

to the Study that resulted in the Casino Area Transportation Plan) in the register of deeds office in the county where that property is located. It should be noted that upon its filing the Interlocal Agreement will not be filed in the grantor/grantee index, so it would typically not show up on a title search. The agreement is filed under the names of the parties to the agreement.

Responsible Jurisdiction: Local

Notice and Opportunity to Provide Input (Some)

Since the Casino Area Transportation Plan is a joint cooperative effort between KDOT and the planning partners to create a transportation planning vision for the Study Area, all parties with an interest in potential development in the Study Area should be afforded an opportunity to provide input on that decision-making process during the requisite application and consideration procedures utilized by that community. Accordingly, the Study partners each 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 reasonably be expected to have the potential to adversely impact the Study Area. In addition, each community should provide KDOT with advance copies of all such proposed plan amendments or development applications and any related staff reports.

Responsible Jurisdiction: KDOT/Local

Land Acquisition (Most)

Public sector entities have the authority to acquire land for public improvements, including state highways and local roads and streets by gift, purchase, or condemnation. (K.S.A. 19-101 et seq., Article 12, Section 5 of the Kansas Constitution, K.S.A. 68-404) Sufficient land may be acquired to accommodate immediate construction needs, as well as for future needs. In appropriate circumstances, public sector entities can acquire interests in land for public improvements in advance of the date of the start of construction. Timely acquisition of necessary rights-of-way preserves opportunities to fully implement the goals of the Casino Area Transportation Plan and helps reduce the cost of full implementation. The primary objective of all the partners in implementing the Plan must be to continually coordinate with one another to identify opportunities to acquire the interests in land necessary to construct the transportation improvements envisioned by the Plan. Continuing coordination is critical, but it means nothing if the partners are not equally devoted to cooperation with one another in the identification of traditional and innovative new sources of revenue and in creative partnering on acquisition strategies.

Responsible Jurisdiction: KDOT/Local

CHAPTER 8: PLAN IMPLEMENTATION

Access Acquisition (Some)

Existing access points that are not consistent with the Casino Area Transportation Plan can often be eliminated through the KDOT's, city's or county's exercise of their police power. For that exercise to be appropriate however, 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. It is only required that a reasonable access is available to a property owner through some alternative means, such as access to a frontage or reverse frontage road, in the case of a highway or from some other adjacent street. That being said, situations will arise where this objective of reasonable access cannot be achieved solely through exercise of a public entity's police power. Situations will also exist where it is desirable to eliminate one or more existing access points to a particular parcel to achieve the access management objectives of the Plan, while still leaving that property owner with a point of direct access that is consistent with the Plan. In those, and in other instances, it may be advisable or even necessary to acquire inconsistent points of access through traditional negotiation or condemnation processes.

Acquisition of access rights can be applied to:

- Limiting access to designated locations or side streets
- Controlling access and sight distance at intersections or interchanges
- Introducing long term or permanent access control
- Controlling traffic and turning movements at locations where high numbers of conflicting movements occur

Responsible Jurisdiction: KDOT/Local

Land Dedication and In-Lieu Fees (Most)

One of the most, if not the most, critical recommendation of the Casino Area Transportation Plan is that both KDOT and the Study partners do everything within their power to preserve and acquire the right-of-way necessary to construct the enhancements to the highway mainline and to the adjacent and interfacing local street network. One of the goals of the plan is to maximize economic opportunities for both landowners and communities in the Study Area while, at the same time, appropriately managing direct access. New development that takes place within the Study Area, in most instances, will create a need for new transportation network facilities to accommodate the vehicle trips it generates.

Both federal and state law authorize the local jurisdictions, as a condition of development approval, that the landowner dedicate rights-of-way needed for network improvements in an amount that is roughly proportionate to the need for facilities generated by that development. A carefully calculated system of

fees-in-lieu of dedication also can be effectively utilized to ensure the timely purchase of sufficient rights-of-way. These in-lieu fees are authorized by K.S.A. 12-749. If the Study partners adopt well-designed, legally defensible right-of-way dedication and/or in-lieu fee programs, the significant costs of acquiring the right-of-way contemplated by the Casino Area Transportation Plan can be greatly minimized, thereby helping to ensure successful implementation of the Plan.

Responsible Jurisdiction: Local

Access Management Strategies

KDOT and local communities can undertake access management activities through its "governmental police powers," beyond common design techniques. These management strategies can be designed to apply equally to all parts of the transportation network within the Study Area. The following are several action steps the planning partners can take to manage access and help assure successful implementation of this Plan.

Approval of Access (Most)

As previously stated, the authority to allow access to a state highway or city connecting links is vested in KDOT (see the KDOT Access Management Policy). A request for access is approved and controlled through issuance of a Highway Permit. The Permit is the legal document that establishes the relationship between the landowner and KDOT. All points of access to the state highway system must be the subject of a Highway Permit. This includes when access connections or local streets and intersections are installed, relocated, improved, removed, or replaced on or along state highway system right-of-way. The permit will specify such things as the location of the point of access, issues related to the construction of the access, type of use allowed at the access point and other conditions and limitations of access at that point. The KDOT District Engineer has been delegated the authority to approve Highway Permits. A request for a Highway Permit must be made with the appropriate KDOT Area Office.

With respect to access to local streets within the Study Area, the authority to approve that access is vested in either the city or county that has jurisdiction at the requested location. This authority is derived from the government's inherent police power. The actual procedure for obtaining access will vary from community to community. Some communities may have adopted an access management policy that governs the location and other aspects of access to the public streets and road. In other instances, regulations governing access points may be located in the community's zoning district regulations or its subdivision regulations. 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.

Responsible Jurisdiction: KDOT/Local

Input to KDOT on Access/Coordination of Access Management (Most)

Because of the importance of access management on the mainline highway, and on the road and street network within the Study Area, and because the authority to permit and close access to the state highway system and its connecting links is vested exclusively in KDOT, (K.S.A. 68-413 and K.S.A. 68404(a)), it is critical that the study partners confer with KDOT respecting development applications that propose access points on the mainline highway and on portions of the local street network that are included in the Plan, particularly if that access is not consistent with points shown in the Casino Area Transportation Plan as future points of access.

Responsible Jurisdiction: KDOT/Local

Coordination with KDOT (Some)

The Casino Area Transportation Plan identifies existing access points on the highway that could be consolidated over time, as appropriate circumstances present themselves, to achieve access management objectives. Accordingly, the Study partners should cooperate with KDOT in identifying existing access points along the mainline and in closing those points, where doing so, will implement Plan goals. Each local government partner should establish points of contact with KDOT to facilitate the ability to quickly capitalize on opportunities as they arise. Early coordination with KDOT at the site plan and preliminary plot stages is important.

Responsible Jurisdiction: KDOT/Local

Shared Access (Some)

One meaningful way to help ensure that all property owners are afforded reasonable access to the mainline and to the local street network consistent with the full functionality of that network, is to encourage that joint access to that network by adjacent property owners be utilized to the maximum extent possible. Therefore, communities, when reviewing development applications, should consider, as a condition of approval of that application, the grant of a recorded easement by the applicant to adjoining property owners or such other conditions as are appropriate to further the Corridor access management objectives.

Responsible Jurisdiction: KDOT/Local

FINANCING STRATEGIES

The Casino Area Transportation Plan has been developed to maximize economic opportunity while enhancing the safety and efficiency of the transportation system. The full costs of the improvements to the mainline highway and adjacent street network necessary to achieve these Plan objectives are significant. Monies needed to complete these enhancements may not be

available from KDOT or from the Study partners when the enhancements are needed. Therefore, the successful implementation of the Plan will rely upon the following:

- Identification of all potential existing financing tools
- Creative analysis of how these tools can best be utilized individually and in concert with one another to maximize resources
- Investigation of possibilities for new options using home rule and delegated powers
- Developing federal and state statutory and regulatory amendments to eliminate funding obstacles and provide new approaches
- Seeking new legislative authority for innovative funding approaches

To achieve this sought-after success, it is imperative that all Study partners carefully and constantly coordinate with one another to identify potential sources of funds and work diligently, once sources are identified, to make certain that available funds are utilized in the most effective and efficient way to the benefit of all parties to this endeavor.

That having been said, there is a wide array of financing options available to cities and counties to finance infrastructure improvements. Notably, many of these same financing options can be used as economic incentives to encourage development to occur at a certain location, in a certain form, and/or in specified densities or intensities. These financing options include traditional mechanisms used by cities and counties to raise revenues and to pay for both the capital and operational expenses of government and other alternative financing strategies.

Traditional funding mechanisms include federal and state funds, real and personal property taxation (Article 12, Section 5 of the Kansas Constitution, K.S.A. 19-101 et seq. and K.S.A. 79-1801 et seq.), sales taxation (K.S.A. 12-187 et seq.), economic development tax exemptions (Article 11, Section 13, Kansas Constitution), special assessments (K.S.A. 12-6a01 et seq., and K.S.A. 12-601), and the Main Trafficway Act (K.S.A. 12-685). The latter two are both discussed in some detail immediately below.

K.S.A 12-6a Improvement Districts (Most)

Improvement Districts are the Kansas form of a traditional benefit district; a financing and development tool whereby cities and counties can establish a district, construct improvements and then issue general obligation bonds for construction of public improvements and assess the cost to those properties that are specifically benefited by the improvement. The bonds are then retired through payment of special assessments that are paid along with the benefited property owner's ad valorem property taxes by these benefiting properties. There is a very specific statutory process that must be followed to effectively utilize this strategy.

Improvement Districts are used by the city and county to assist in development of arterial roadways (usually associated with section line roads), water lines and sanitary sewers, among other public improvements. It is a responsible and fair method available to communities in Kansas to pay for the roads and infrastructure associated with new development, though its use is not limited to improvements to support only new development. For example it is often used as the financing mechanism for the construction of new sidewalks in existing developments. However, the method can be effectively used to ensure existing property owners do not pay for improvements from which they do not receive a special benefit.

With the number of roadway, sanitary sewers and water line improvements throughout a community, if the community did not utilize improvement districts, either the improvements would not be made or property owner's ad valorem property taxes would need to be raised to allow for the construction of these necessary improvements. Developers have the option to build the improvements in front of their land to meet city specifications, but in so doing, a hodge-podge of improvements would occur, and the improvements could be under construction at different times and cause much more disruption than the orderly process afforded by the creation and administration of Improvement Districts.

Responsible Jurisdiction: Local

Main Trafficways (Few)

K.S.A. 12-685 et seq. authorizes cities to designate by ordinance any existing or proposed street, boulevard, avenue or part thereof, within its jurisdictional boundaries as a main trafficway, if the primary function of the street is the movement of traffic between areas of concentrated activity within or outside the city. Once designated a main trafficway, the city is authorized to acquire by purchase or condemnation the land necessary for that facility and to improve or reimprove that trafficway. Virtually all aspects of the construction of these trafficways is authorized, including bridges, viaducts, overpasses, underpasses, culverts and drainage, trafficway illumination, traffic control devices and pedestrian ways. The cost for these improvements, including acquisition, can be paid for from the cities' general improvement fund, internal improvement fund or any other available funds or by the issuance of general obligation bonds. No vote of the public is required for issuance of bonds for these purposes. This method is often used in conjunction with the improvement district statute for street improvements.

Because the other traditional mechanisms are regularly utilized by KDOT, cities and counties to pay for capital projects, they will not be discussed in further detail; rather the remainder of this section is devoted to an explanation of several of the less-traditional mechanisms available to cities and counties to pay for improvements contemplated by the Plan and to incent development that is consistent with the Plan's recommendations. All of these financing

mechanisms are available to fund improvements contemplated by the Casino Area Transportation Plan and their use, as the situation dictates, should not be ignored.

Although not actually a source of additional revenue, the bonding authority of cities and counties is worth noting. Each is authorized to issue long-term debt to finance projects, with that debt to be repaid from a variety of traditional and some alternative revenue sources. Bonding authority is important for many reasons, but one key advantage of issuing bonds to finance public improvements is that it allows the issuing entity to pay for an improvement up front (before total project costs are available in hand) to get a project started or even completed in those instances where timing is critical in terms of events in the community and/or to take advantage of favorable financial markets. These improvements can then be paid for over time, generally up to 20 years, as tax revenues or other dedicated sources become available. This can be a huge advantage and can help the partners in their efforts to acquire land for and make the improvements contemplated by the Plan when actual situations in the study area dictate those actions occur.

Most alternative funding techniques are devised by one local government to meet a local need and their use than spreads from community to community. The techniques are refined based on trial-and-error. Many of these approaches do not have specific legislative authority, but are enabled through home rule, local police powers, or a broad reading of authority from another source, such as local planning.

State highway, road and street projects required to support new development, may be constructed utilizing economic incentives, such as tax increment financing, Star Bonds, sales tax reimbursement agreements, tax abatement, special assessment districts and transportation development districts, to name only several of the options. It is important that, wherever possible, local communities along the Corridor be cognizant of their ability to require that revenues from the grant of these incentives to developers be used to offset the cost of the construction of mainline highway improvements and related improvements to the local street network, as shown on the Transportation Plan. But, even more importantly, they must actually make the grant of these incentives conditional on a reasonable portion of these monies being used to pay the cost of Transportation Plan identified improvements.

These incentives also can be effectively used to influence the location, type/uses, form, architectural quality, configuration and density/intensity of development. It is important to utilize these incentives, not only to offset traditional public costs for these facilities, but also as incentives to shape development proposals, so they further Plan recommendations.

Responsible Jurisdiction: Local

CHAPTER 8: PLAN IMPLEMENTATION

Impact Fees (Few)

Impact fees are one-time regulatory fees assessed against new development to cover the costs for necessary capital facilities proportionate to the demand generated by the new development. The fee is imposed by a public sector entity on development activity as a condition of granting development approval, and generally is calculated at the platting stage and collected at the time a building permit is issued. Kansas has no impact fee statutory authority. Nevertheless, cities and counties can establish a system of impact fees using their home rule authority. This system of fees requires the development of a local legislative adopted scheme that includes the calculation methodology for the fee, and a system of credits, exemptions and appeals. The system would be adopted by ordinance or resolution, as the case would require. Impact fees must be used to add capacity attributable to new development; they cannot be used to pay for improvements necessitated by existing development. An impact fee must meet three requirements:

- The new facilities are a consequence of new development;
- There must be a proportionate relationship between the fee and the infrastructure demand; and
- The funds collected must be used to provide a substantial benefit to the new development.

In Kansas, impact fees may be collected either across the entire jurisdiction or in a designated geographic area. While they may be assessed at platting, impact fees are typically collected upon building permit issuance. A detailed calculation is necessary to ensure that the system, and particularly the fee charged property owners, is proportionate to the demand for new facilities that each unit of new development generates, i.e., its impact, in terms of facility capacity consumed. In funding transportation network facility improvements, the measuring stick for each development's impacts is the number of vehicle trips it will generate. Since streets are generally designed to accommodate the PM Peak trips, that is generally the time interval used.

The Kansas Supreme Court has recognized the legitimate use of impact fees in *McCarthy v. City of Leawood* (257 Kan. 566, 894 P.2d 836, 1995). In that case, the City of Leawood assessed the payment of impact fees on the issuance of building permits and plat approvals for properties within the K-150 (135th Street) Corridor. The purpose of the fee was to finance a portion of the improvements of K150. Back when first established in 1988, the fee was calculated based upon trip generation, at a rate of \$26.45 per trip. This rate was then multiplied by the average number of trips generated by a use to determine the individual fee. For example, residential uses were projected to generate 10 trips per day, multiplied by \$26.45 for a fee of \$264.50 per unit.

Responsible Jurisdiction: Local

Excise Tax (Few)

Technically, an excise tax is a broad term that covers every type of tax, except a property tax. As with all taxes, it is a method of raising revenue. It is distinguished by the fact that rather than being based on the value of property, it is levied on a certain activity or the exercise of a privilege – more accurately described as business done, income received, or privilege enjoyed. Typical examples of excise taxes include taxes on the purchase of gasoline, alcohol or cigarettes, business license taxes and on the rental of hotel rooms. In recent past, local governments in Kansas have innovatively used an excise tax to fund transportation network improvements that are required to support development. It is structured as a tax on activity of platting lots. The rate of the tax is based on the amount of square footage proposed to be constructed or on the number of vehicle trips the proposed development will generate on the street network. The key reason for its use has been that because it is a tax and not a regulatory fee, the rate is not required to satisfy the constitutional benefit or nexus requirements of regulatory fees imposed by local governments, such as impact fees discussed above. Kansas courts had upheld this financing approach.

In 2006, however, the Kansas Legislature amended K.S.A. 12-194 to make it uniformly applicable to all cities. By doing so, this provision became no longer subject to a charter ordinance or resolution whereby cities and counties could make its provisions inapplicable to that city or county and adopt supplemental provisions on the subject. This charter approach was the one that cities and had used to eliminate the legal impediment in K.S.A. 12-194 and use their ordinary home rule power to establish an excise tax system of this type. It had become known as a “development excise tax.” That amendment, in addition to precluding local governments that did not have a development excise tax in place from adopting one, also included a provision that prevented cities and counties that had levied or imposed a development excise from increasing the rate of the tax without a majority vote of the electors, after July 1, 2006. Accordingly, this technique is only available to local governments that had a development excise tax in place before that date, and those that did have one in place cannot increase the rate charged without a vote.

Responsible Jurisdiction: Local

Transportation Development Districts (Few)

A Transportation Development District (TDD) (K.S.A. 12-17,140 at seq.) is a form of a special district enacted specifically to facilitate the construction, maintenance and financing of a broad array of transportation projects, ranging from streets, roads, highway access roads, interchanges and bridges to light rail and mass transit facilities. Most improvements related thereto, such as streetscape, utility relocations and other necessary associated infrastructure, can also be funded using this technique. While a regular special district can be used to address transportation issues, transportation development districts

allow greater funding flexibility, including authority to impose a transportation development district sales tax of up to 1% (K.S.A. 1217,145), in addition to the authority to levy special assessments. If a transportation development district is sought to be imposed, the governing body must hold a duly noticed public hearing in advance of adopting the resolution or ordinance creating the district and approving the method of financing projects within the district. The district may issue bonds backed by the revenues received from properties in the district from the imposed sales tax or special assessment.

One significant difficulty in utilizing this mechanism for improvements covering a larger area is that the district can only be formed through a petition signed by owners of all of the land area within the proposed district. So, if the improvement is adjacent to lands owned by different owners, it may be difficult to obtain the consent of all necessary owners. It may have its greatest utility for distinct segments of the improvements proposed by the Management Plan, such as mainline highway interchanges and access roads located within one tract of land that is designated in the Plan for more dense or intense development. This technique can also be used effectively to assist in the financing of key portions of the adjacent local street network. The statutory scheme allows for a good deal of flexibility in how the boundaries of the district are established, so long as all included property owners agree. For that reason, the community partners should keep this tool on the list of the ones that should be considered for funding, particularly in those instances where a property owner or several property owners want to develop an area of land at an access point with sales tax generating properties.

Responsible Jurisdiction: Local

Tax Increment Financing (Some)

Tax increment financing (K.S.A. 12-1770 et seq.) is a tool used by local governments to capture the future increases in property tax and all or a portion of the revenues received from transient guest, use, local sales taxes collected from taxpayers doing business within the district, and increased franchise fees, and to make revenues realized therefrom available as an incentive to development, by using the revenue to pay for, generally, public infrastructure necessary to implement a redevelopment project plan (K.S.A. 12-170a (o)). Project costs may not include costs related to a structure to be owned by or leased to a developer. TIF funding can provide funds either as collected (pay-as-you-go) or through special obligation tax increment bonds repaid over twenty years.

While there is specific enabling authority for the use of TIF, it is limited to “eligible” areas that fall within one of the following categories and the boundaries of which are designated by the local government as a redevelopment district:

- 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

Therefore, not all property within a local government’s jurisdictional boundaries may qualify to be included in a redevelopment area. Eligible project costs most certainly would include all transportation network public infrastructure as identified in the Casino Area Transportation Plan.

Responsible Jurisdiction: Local

Sales Tax and Revenue Bond Districts (Some)

This mechanism (K.S.A. 12-17, 160 et seq.) is the big brother/sister of tax increment financing. It’s a “Super TIF,” if you will. The entire mechanism works almost exactly like tax increment financing, except the districts are called STAR bond project districts and the individual projects in the district are called STAR bond projects. Each project must be approved by the Secretary of Commerce and include at least a \$50,000,000 of capital investment and evidence \$50,000,000 in project gross annual sales or, if outside a MSA, met the requirements of K.S.A 12-17,162 (w). It is the heightened level of incentives authorized in these districts that is key. Once a district is established and a project plan is approved, the approving city may issue special obligation bonds. Importantly, those bonds may be repaid from the portion of the city and county sales and use tax collected from taxpayers within the city portion of the district AND the sales tax increment revenues received from any state sales taxes collected from taxpayers in that district. This is in addition to the property tax increment and local sales, use and franchise fee that can be pledged to repayment of the special obligation bonds issued in a traditional tax increment financing project. The Secretary can set a limit on the amount of bonds that may be issued to pay eligible project costs.

Responsible Jurisdiction: Local, subject to approval by the State of Kansas

APPENDIX 1: LOCAL & REGIONAL PLANS

There have been many planning efforts that cover the Study Area from Mulvane's Comprehensive Development Plan to the Wichita Area Metropolitan Planning Organization's Railroad Crossing Plan. There are descriptions of the plans that have a major impact on development and transportation activities in the Study Area.

EXISTING PLANS

Comprehensive Development Plan for the Mulvane Area, Kansas 2000-2012 (2002)

The Casino Complex is within the jurisdiction of the city of Mulvane. Development within and surrounding the Casino Complex is guided by the Comprehensive Development Plan for the Mulvane Area, Kansas 2000-2012. The Mulvane comprehensive plan works as a tool to provide decision makers with and assessment of existing infrastructure and services demands. The plan also includes goals and strategies to achieve the future vision set forth in the plan. It should also be noted that an update of the plan is being completed at the time of this writing, extending the planning horizon through 2023. The 2011 Amendment to the Comprehensive Development Plan for the Mulvane Area, Kansas 2000-2012 – West Area Plan amended the Mulvane Planning Area boundary to include the area surrounding the Kansas Star Casino site.

City of Mulvane, Kansas Public Safety Study (2011)

The Public Safety Study assessed the need for municipal emergency services, equipment, and facilities to serve the west area of Mulvane. The study identified a likely increase in police and emergency medical calls due to development at the Casino Site, which can be accommodated by Mulvane. Potential issues may occur during major events at the Casino Site because Mulvane has only two ambulances. Issues with fire protection may also arise in the future. The study identified potential options for fire protection including to build a new facility in closer proximity to the Casino Site.

Utility Needs Assessment Study (2011)

The city of Mulvane assessed the current state of its water, wastewater, and electric systems. They identified impacts generated from the development of the Kansas Star Casino and recommended improvements to meet future demands. Investments in all three systems were deemed necessary to meet future demands caused by the Casino development.

Haysville Comprehensive Plan (2007)

The city of Haysville is located just north of the northern reaches of the Study Area. The growth and development of Haysville, which is guided by the Haysville Comprehensive Plan, will impact the Study Area. Haysville's population is expected to grow 3.19% through 2020, with an emphasis on higher density residential areas. Haysville also desires to broaden the economic base by

providing desirable sites for new business. As for specific impacts within the Study Area, it is likely that development of Haysville will be confined to the north of 79th Street North for the foreseeable future. However, the development will likely have traffic impacts within the Study Area due to its proximity.

Wichita/Sedgwick County Comprehensive Plan (1999)

The development guide to Wichita and Sedgwick County, the Wichita/Sedgwick County Comprehensive Plan, outlines goals and objectives for future development and public investments. The plan focuses the expected population growth through 2030 to be at the edges of Wichita. Substantial population growth is also proposed for most small cities and for large residential lots in rural areas.

Sumner County Comprehensive Plan (2002)

Similar to the Wichita/Sedgwick County Comprehensive Plan, the Sumner County Comprehensive Plan sets goals and objectives for Sumner County. Substantial population growth is expected in the smaller cities through 2020, especially in Belle Plaine with a population increase of 62.4%. Mulvane is expected to grow mostly in Sedgwick County, with only an expected 8.1% increase through 2020. The rural areas are expected to grow 15.6% through 2020. A majority of the residential, commercial, and industrial growth is expected in the Northeast quadrant of Sumner County. By 2020, the following are identified in the Plan:

- Expansion of residential by 1,800 acres, with most being single-family.
- Expansion of commercial by 50 acres, with significant growth occurring near urban areas and along major travelways.
- Expansion of industrial by 80 acres, with increases in both light and heavy industry.

WAMPO Plans

Just over half of the Study Area is within the Transportation Study Area of the Wichita Area Metropolitan Planning Organization (WAMPO). WAMPO is the regional transportation planning authority for the greater Wichita Area. WAMPO has developed plans that impact the Study Area.

Metropolitan Transportation Plan 2035 (2010)

The Metropolitan Transportation Plan (MTP) 2035 is a regional long-range transportation plan that identifies planned regionally significant transportation investments through 2035 to achieve a safe, efficient, accessible, and affordable transportation system. Projects must be consistent with the MTP 2035 if they are to be eligible for federal transportation funds. Specific projects that are listed in the MTP 2035 and are within or directly adjacent to the Study Area include:

- Mulvane Bypass: K-15 to K-53 – new 2 lane asphalt rural type road and an overpass over BNSF railroad
- Hillside: K-53 to 83rd Street South – reconstruct to 3-4 lanes with curb and gutter, storm water sewers, and bike paths
- 95th Street South: Hillside to Broadway – improve to a 4 lane urban parkway
- 95th Street South: Meridian to Broadway – improve to 4 lane urban parkway

South Area Transportation Study (2008)

The South Area Transportation Study (SATS) studied the mobility and access in the southern portion of Sedgwick County. SATS identifies specific improvements that are needed and can reasonably be funded. Improvements within the Study Area included:

- Paving Webb road through the Study Area
- Paving 103rd Street South west of Broadway
- Paving 95th Street South west of Broadway
- New bridge over Arkansas River between 83rd South and K-53
- Potential upgrades (shoulders or widening to K-53 from Arkansas River to Hydraulic)
- Potential arterial parkway on 95th Street South through the Casino Study Area (long-term plan)

Safety Plan (2011)

The WAMPO Safety Plan was created to identify key safety needs and guide investment decisions. The Plan presents data on crash types, contributing circumstances, and crash severity. Five safety priorities were identified based on the data: roadway departures, intersections, impaired driving, occupant protection, and vulnerable road users (motorcycles, pedestrians, and pedal cycles). There are short-term and long-term strategies to mitigate safety issues for each priority area. Based on data contained within this plan, there does not appear to be a high concentration of crashes within the Study Area. However, further crash analysis was completed for the Casino Area Transportation Plan and is available in **Chapter 4**.

Railroad Crossing Plan (2007)

WAMPO developed the Railroad Crossing Plan (RRCP) to determine the degree of hazard potential for each railroad crossing. This rating takes into account the amount of vehicular traffic, average number of trains per day, and the type of warning device. The RRCP identifies the top 50 potentially hazardous crossings and offers up potential mitigation strategies for improving the safety of railroad crossings.

PLANS UNDER DEVELOPMENT

Sedgwick County Quad Cities Joint Area Plan

The Sedgwick County Quad Cities Joint Area Plan is currently being developed through a cooperative effort between the cities of Derby, Haysville, Mulvane, and Wichita in partnership with Sedgwick County. The Quad Cities Plan will focus on certain land use planning issues of mutual interest of the aforementioned jurisdictions. The following are highlights from a draft plan that have been identified to potentially occur within or impact the Quad Cities Joint Area Plan area, which could be within the CATP Study Area:

- Future regional park within the area
- Additional active and passive recreation spaces
- Public access to Arkansas River for recreation
- Regional park or equestrian recreation trail within the 100 or 500-year flood area in proximity to Arkansas River
- Equestrian recreation trail along west bank of Arkansas River from K-53 to 83rd Street South
- Update Sedgwick County Code amendments for slab-on-grade construction and lowest building floor elevation
- Continue flooded residential property voluntary buy-out program
- Develop bicycle infrastructure improvements in the Casino Study Area as recommended by the Casino Area Transportation Plan
- Consider bicycle/pedestrian infrastructure along 95th Street South
- Develop 95th Street South into a parkway and increase building setbacks along the corridor
- Develop Mulvane bypass (K-15 to K-53)

Wichita/Sedgwick County Community Investments Plan

The city of Wichita and Sedgwick County are developing an update to their comprehensive plan; the Community Investments Plan. The Wichita/Sedgwick County Metropolitan Area Planning Department initiated this process in 2012 with the purpose of assessing existing public infrastructure and identifying priorities on where public investments should be made and policies to implement. This plan will focus updating the future land use guide, the urban growth areas, locational guidelines, the relevancy of the plan to the Capital Improvement Program, and the future public investment priorities. The plan is scheduled for adoption in 2014 – 2015.

WAMPO Metropolitan Transportation Plan 2040

The Metropolitan Transportation Plan (MTP) 2040 is currently being developed. The MTP 2040 will work similar to the MTP 2035 but may include different transportation priorities and projects. Future transportation projects identified by the CATP should be included within the MTP 2040 as appropriate.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



DEMOGRAPHIC, ECONOMIC, AND MARKET ANALYSIS US-81/K-53 CORRIDOR PLAN



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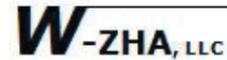
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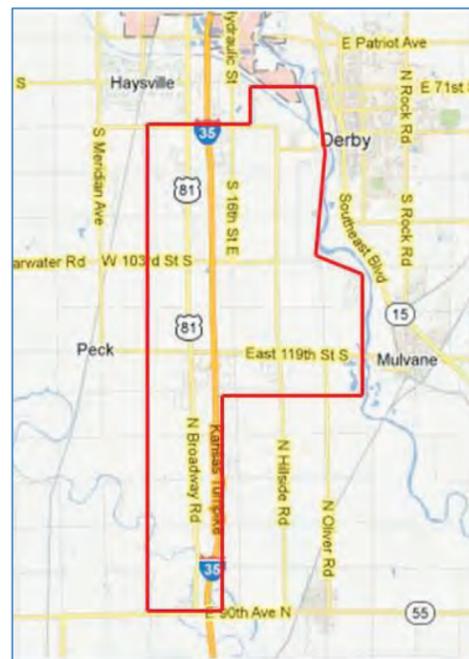
APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



INTRODUCTION

The purpose of the market analysis is to assess the future development potential of the Study Area. In that portion of the Study Area located in Sedgwick County, the boundary is generally defined as 79th St to the north, the Arkansas River to the east, Seneca Rd to the west, and K-53 to the south. The Sumner County portion of the Study Area is bounded by K-53 to the north, the Arkansas River on the east to a southern boundary of East 140th Street to Interstate 35, then south to K-55 and west to North Seneca Road.

Study Area Map



Source: Google Maps; W-ZHA

The market for residential, commercial, industrial and agri-business was analyzed and projected to 2040. The land use projections are intended to inform the US-81/K-53 Casino Area Transportation Plan. The following tasks were undertaken to perform the market analysis:

- Population and employment trends in the Wichita Metropolitan Area, Sedgwick County, Sumner County, and the Study Area were analyzed;
- Existing population and household characteristics were analyzed to understand the character of the existing market;
- Long term demographic projections were obtained, analyzed and refined given the market analysis findings;

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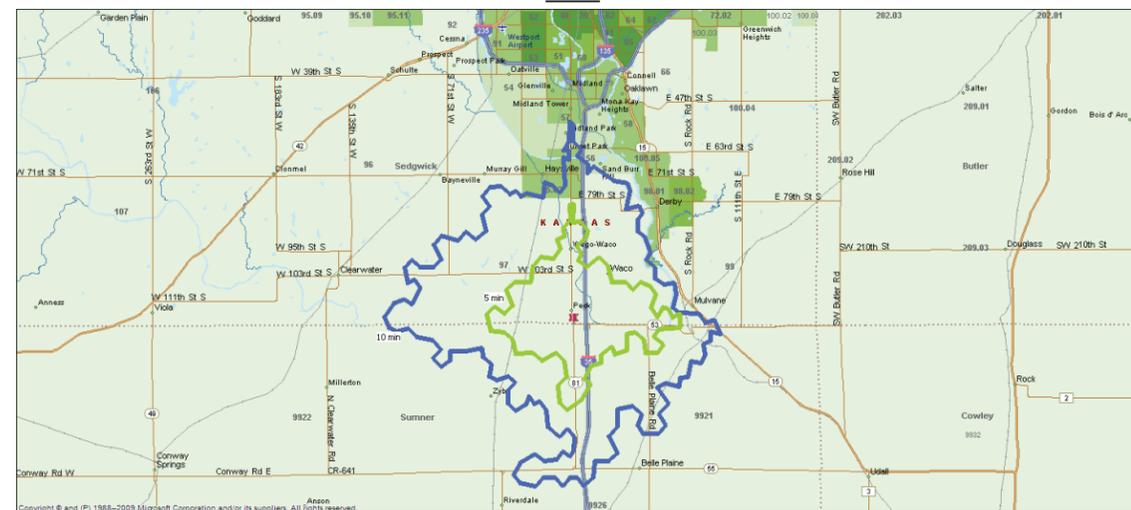
- Key market factors were identified and evaluated for each land use to determine future development potential;
- Economic development professionals in comparable communities were interviewed to understand how the introduction of a casino impacted land use patterns;
- Existing economic impact analyses were reviewed to understand the casino and equestrian center's projected operating performance and impact; and,
- Given the results of the prior tasks, the demand for residential, commercial, industrial, and agri-business land uses was projected to 2040.

THE STUDY AREA

The following map illustrates household density by census tract as well as the 5-minute and 10-minute drive time shed from the US-81/K-53 intersection. As can be seen by the low household density, most of the Study Area is rural in character. There are only 188 households within a five-minute drive of the US-81/K-53 intersection and 3,795 households within a 10-minute drive.

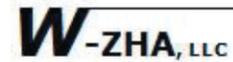
Households Per Square Mile
5 to 10-Minute Drive Time from the US-81/K-53 Intersection

2010



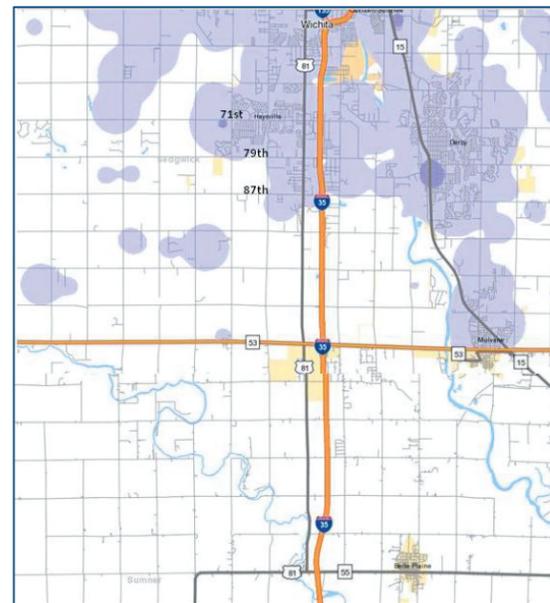
APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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The following map illustrates job density in 2010. The Kansas Star Casino was not operating in 2010. In 2010, there were few businesses around the US-81/K-53 intersection.

Location of Jobs
Study Area and Environs, 2010



Source: U.S. Census; W-ZHA

The map illustrates that employment intensity increases north of 87th Street in Haysville. It also illustrates how the Arkansas River acts as a barrier to/from points east of the Study Area. Most jobs are more than a 10-minute drive from the US-81/K-53 intersection.

According to the Kansas Department of Transportation's 2012 traffic counts, an average of 2,600 vehicle trips occur on K-53 between US-81 and I-35. Average daily trips on the Interstate were 18,800 immediately south of the K-53 exit. Interstate volume increases north of K-53. Average daily traffic on I-35 is 23,700 near 71st Street in Haysville.

There is very little traffic on US-81 south of 87th Street. Average daily traffic on US-81 immediately north of the K-53 intersection was 3,020 and 3,960 south of the intersection. Like the Interstate, traffic volume increases on US-81 as you proceed north. The traffic count on US-81 near 79th Street was 11,500 per day.

In terms of land use, the Kansas Star Casino Complex is located on the southeast corner of the US-81/K-53 intersection. The temporary casino is now open and a 150-room hotel is under construction. The permanent casino is also under construction.

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The Wlydewood Cellars Winery is located on the south side of K-53 between US-81 and K-53. The next closest commercial use is the Polo Field north on US-81. There are a limited number of roadside commercial buildings between 119th and 79th Street. Most service, retail and light industrial land uses are located outside of the Study Area approximately 5 miles away in either Haysville north of 79th Street, or Mulvane at K-15. Field surveys indicate that there are no retail, service or industrial land uses in the Study Area south of K-53.

Interviews with local economic development professionals revealed that there is water and sewer available for new development in the Study Area on land abutting the south side of K-53. To develop on the north side of K-53 will require additional infrastructure investment. The area north of K-53 and east of US-53 is also challenged by a low elevation and a high water table.

There is no water and sewer service available to development on US-81 in the Study Area except immediately south of 79th Street.

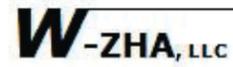
SOCIO-ECONOMIC TRENDS AND EXISTING CONDITIONS

The Study Area Has Experienced Growth Over the Last Twenty Years - The Study Area's population grew by approximately 380 people between 1990 and 2000 and by approximately 330 people between 2000 and 2010. The Study Area's growth represents a small share of the Metropolitan Area's population growth.

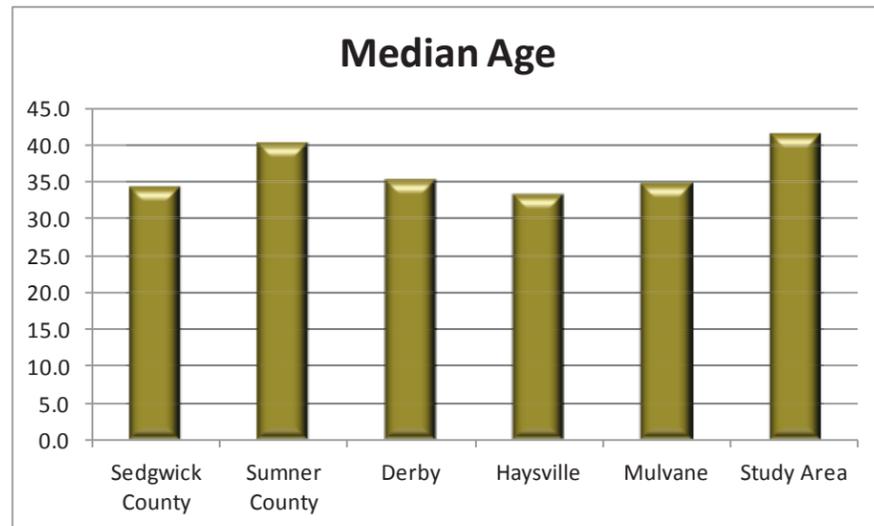
	Population Trends Selected Areas 1990, 2000, 2010							
	1990	2000	2010	Change				
				1990-2000		2000-2010		
	#	%	#	%	#	%		
Wichita Metropolitan Area	511,111	571,166	626,878	60,055	12%	55,712	10%	
Sedgwick County	403,662	452,869	503,339	49,207	12%	50,470	11%	
Sumner County	25,841	25,946	23,337	105	0%	-2,609	-10%	
Derby	15,192	17,807	22,981	2,615	17%	5,174	29%	
Haysville	8,471	8,502	9,678	31	0%	1,176	14%	
Mulvane	4,937	5,155	6,164	218	4%	1,009	20%	
Study Area /1	3,879	4,255	4,532	376	10%	277	7%	

Source: Claritas, Inc.
f:\8000s, misc\80080 Wichita PEC\demo 3.xls\Sheet1

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



The Median Age in the Study Area is Considerably Higher Than The Median Age in Sedgwick County, Derby, Haysville, and Mulvane - The median age in the Study Area is 41.3 years old. The median age in Sedgwick County is 34.2 years old, while in Sumner County it is 40.1 years old.



Source: Claritas, Inc.
Demo 3

The median age among Study Area residents has increased over the last decade.

Median Age Selected Areas 2000 and 2010

	2000	2010
Sedgwick County	33.7	34.2
Sumner County	37.3	40.1
Derby	34.8	35.1
Haysville	33.3	33.1
Mulvane	34.5	34.6
Study Area	38.2	41.3

Source: Claritas, Inc.
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Only 15 Percent of Study Area Residents Aged 25 or Older Have a Bachelor's Degree or Higher

Educational Attainment Population 25 Years Old and Older Select Areas 2010

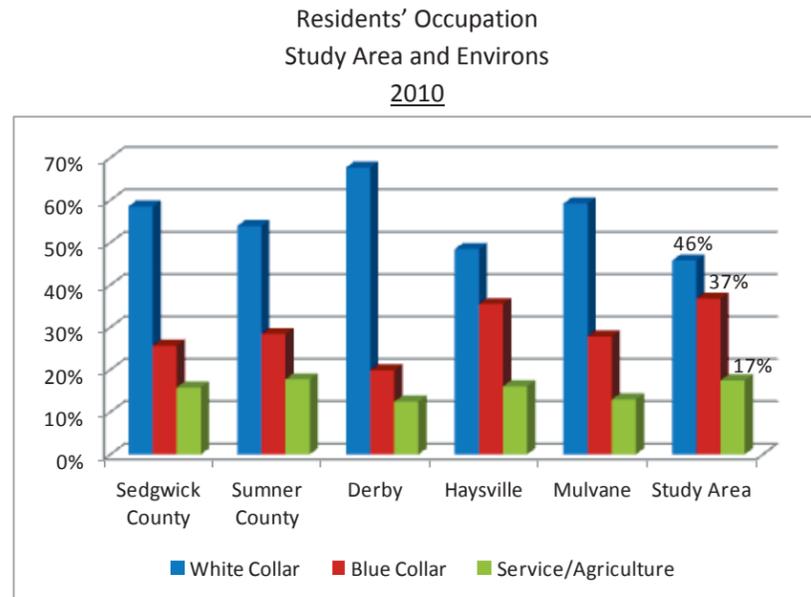
	< High School	High School	Some College	Associates	Bachelors	Masters/Prof/Doctorate
Sedgwick County	11%	29%	26%	7%	19%	9%
Sumner County	9%	35%	29%	8%	13%	5%
Derby	4%	24%	27%	8%	24%	12%
Haysville	11%	45%	25%	5%	11%	3%
Mulvane	8%	30%	29%	11%	18%	4%
Study Area /1	13%	39%	23%	10%	11%	4%

Source: Claritas, Inc.
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APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

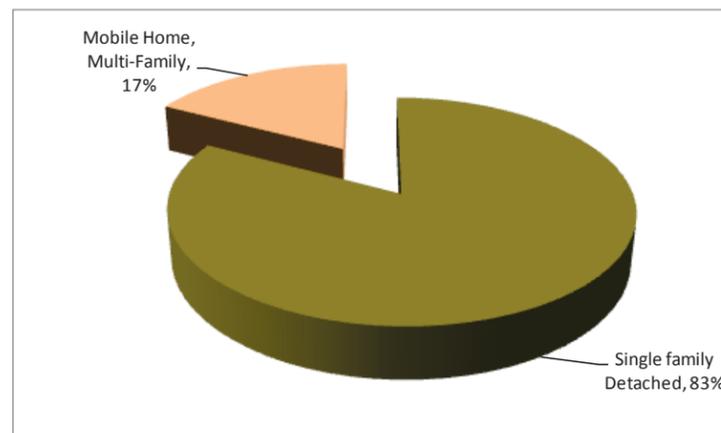


A Relatively High Share of Study Area Residents Are Employed In Blue Collar and Service/Agricultural Industries -- Over half of those who reside in the Study Area are employed in blue collar or service/agricultural industries.



Source: Claritas, Inc.; W-ZHA

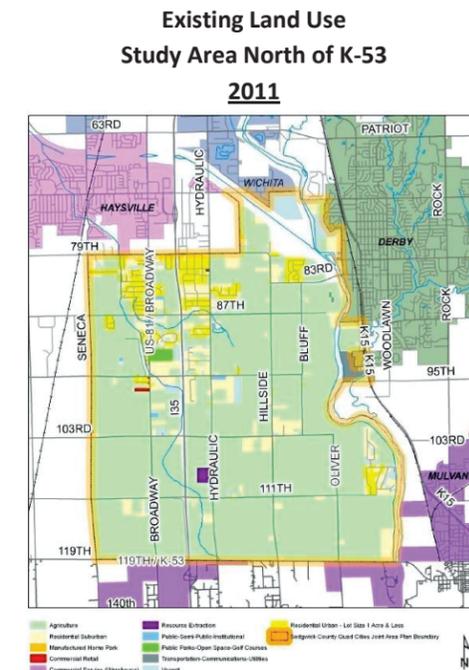
Most Households In the Study Area Reside in Single Family Detached Housing Units -- Over 80 percent of the housing units in the Study Area are single family detached units.



Source: Claritas, Inc.; W-ZHA

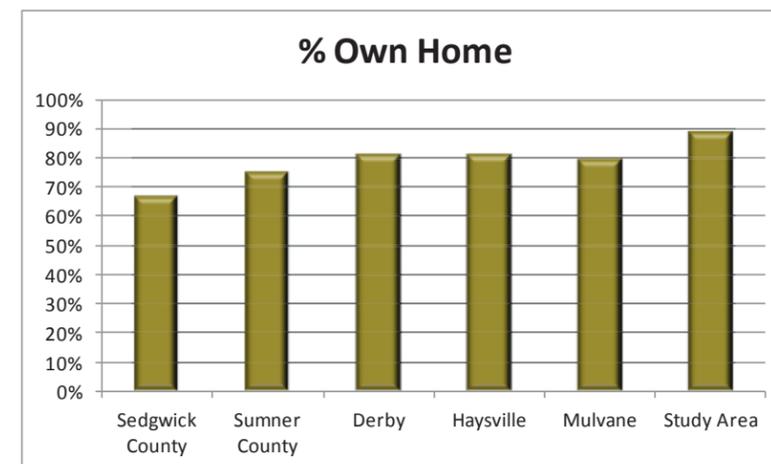


The Study Area south of K-53 is agricultural in land use. As illustrated on the map below, north of K-53 to 95th Street, the housing is mostly large lot single family development. North of 95th Street the housing stock is more dense with more homes on lots of an acre or less.



Source: Sedgwick County Quad Cities Joint Area Plan 2012-2035

The Study Area Has A High Rate of Home Ownership - 88% of the housing units in the Study Area are owner-occupied. The home ownership rate in the Study Area is well above the home ownership rate in the surrounding communities.



APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



Source: Claritas, Inc.
Demo 3

Median Income Within The Study Area is Above the County Median Income – The median income among Study Area households was approximately \$60,000 in 2010. Only Derby households had a median income above the Study Area’s.

	Median Income Selected Areas 2000, 2010			
	2000	2010	Change	
			#	%
Sedgwick County	\$43,070	\$47,712	\$4,642	11%
Sumner County	\$39,756	\$47,035	\$7,279	18%
Derby	\$59,257	\$64,922	\$5,665	10%
Haysville	\$46,855	\$50,809	\$3,954	8%
Mulvane	\$46,935	\$55,095	\$8,160	17%
Study Area	\$53,589	\$60,352	\$6,763	13%

Source: Claritas, Inc.
F:\8000s, misc\80080 Wichita PEC\[demo 4.xls]Sheet2

Households In The Study Are Mostly Young or Older Empty Nesters and Retirees -- Approximately, 30 percent of the households that reside in the Study Area are young and wealthy. Some of these households have children at home, but many do not. Over 40 percent of the households in the Study Area are empty nesters or retirees.



Household Lifestage Study Area 2010

YOUNGER YEARS		37.9%
Midlife Success	29.6%	
Young Achievers	0.1%	
Striving Singles	8.1%	
FAMILY LIFE		19.1%
Accumulated Wealth	0.0%	
Young Accumulators	7.5%	
Mainstream Families	11.0%	
Sustaining Families	0.6%	
MATURE YEARS		43.0%
Affluent Empty Nesters	9.0%	
Conservative Classics	17.1%	
Cautious Couples	14.3%	
Sustaining Seniors	2.7%	

Source: Claritas, Inc.
F:\8000s, misc\80080 Wichita PEC\[study area prizm.xls]Sheet1

ECONOMIC INDICATORS

The Study Area boundaries in the Sedgwick County portion of the Study Area align with the Sedgwick County Quad Cities Joint Area Plan: 2012-2035 boundaries (“Quad Cities Joint Area Plan”). With the exception of the Casino, most jobs in the Study Area are in this portion of the Study Area. The Quad Cities Joint Area Plan indicates that as of 2008, there were 213 jobs in this portion of the Study Area. Fifty-five of these jobs were in retail businesses.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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Existing Jobs
Sedwick County Quad Cities Joint Area Plan
Working Draft, April 4, 2012

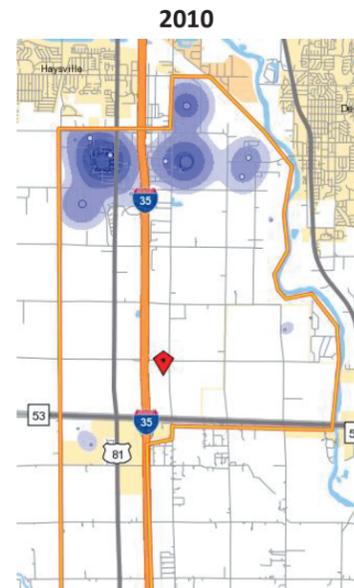
	Jobs	Share of Jobs
Retail	55	26%
Non-Retail	158	74%
Total	213	100%

2035; W-ZHA

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According to the US Census, practically all of these jobs were located north of 87th Street.

Location of Study Area Jobs Prior to the Casino



Source: U.S. Census

Today, there are 601 jobs at the Kansas Star Casino in the Sumner County portion of the Study Area. In addition, there are jobs at the Wyldewood Cellars Winery. Currently, the Study Area is estimated to contain approximately 820 jobs. The job breakdown is estimated to be as follows.

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Existing Job Estimate
Study Area
May, 2012

	Jobs	Share of Jobs
Retail	61	7%
Non-Retail	759	93%
Total	820	100%

Source: Sedgwick County Quad Cities Joint Area Plan, 2012-2035; W-ZHA

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BASELINE PROJECTIONS

The “Baseline” employment projections include the Casino Complex itself, but not the Casino Complex’s spin-off development. The Casino Complex’s potential impact on future land use is presented later in this report. The projections contained in this section are derived from Sedgwick County Quad Cities Joint Area Plan, development trends and the Casino Complex’s build-out plan as summarized in the State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, Appendix 1 by EKAY Economic Consultants (December, 2010).

Housing Units

Baseline housing unit projections were developed for the Quad Cities Joint Area Plan. The boundary of the Quad Cities Joint Area Plan align with the Study Area boundary north of K-53. Those portions of the Study Area south of K-53 were not part of the Quad Cities Plan. The baseline projections contained in the Quad Cities Joint Area Plan are summarized on the table below. These projections do not include Casino Complex impacts.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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Projected Households Net of Casino Impact Sedwick County Quad Cities Joint Area Plan 2010-2035			
	2010	2035	New
Housing Units	1,418	1,588	170

* The Plan states that 100 of the 170 housing units will likely be developed within a 2-square mile area bounded by 79th St. South, Seneca, 87 St. South, and Hydraulic.

Source: Segwick County Quad Cities Joint Area Plan, 2012-2035; W-ZHA

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The projections from the Quad Cities Plan were extrapolated to project households in 2040. W-ZHA estimates that there will be 206 new households in the northern portion of the Study Area (north of K-53) by 2040.

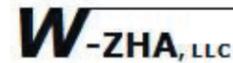
Projected Households Net of Casino Impact Sedwick County Quad Cities Joint Area Plan 2010 to Extrapolated 2040				
	2010	2035	Extrapolated 2040	New
Housing Units	1,418	1,588	1,624	206

Source: Segwick County Quad Cities Joint Area Plan, 2012-2035; W-ZHA

f:\8000s, misc\80080 Wichita PEC\jobs.xlsx]Sheet9

W-ZHA extrapolated trend data from 1990 to 2010 to develop a baseline projection of new housing units in the Study Area south of K-53. Assuming the 1990 to 2010 growth rate stays consistent; by 2040 there will be 47 new housing units in the southern portion of the Study Area by 2035. These projections do not take into consideration the potential impact of the Casino Complex on the residential market.

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Baseline Projected Housing Units Net of Casino Impact Study Area South of K-53 2010-2040				
	1990	2010	Extrapolated 2040	New
Housing Units	260	292	328	36

Source: Claritas, Inc.; W-ZHA

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There are no housing units planned as part of the Kansas Star Casino Complex. In summary, the Study Area is projected to grow by 242 housing units by 2040, exclusive of growth derived from Casino Complex spin-off development.

Baseline Projected Housing Units Net of Casino Impact Study Area 2010-2040			
	2010	Extrapolated 2040	New
Housing Units	1,710	1,952	242

Source: Claritas, Inc.; W-ZHA

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Jobs

The baseline employment projections contained in the Quad Cities Joint Area Plan are summarized on the table below. Employment in this portion of the Study Area is projected to increase by 40 jobs by 2035.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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Projected Jobs Net of Casino Impact Sedwick County Quad Cities Joint Area Plan 2008-2035

	2008	2035 *	New
Retail	55	70	15
Non-Retail	158	183	25
Total	213	253	40

* The 2035 projection did not include a breakdown of retail and non-retail. The 2008 ratio was applied to 2035.

Source: Sedwick County Quad Cities Joint Area Plan, 2012-2035; W-ZHA

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The projections from the Quad Cities Plan were extrapolated to project jobs in 2040.

Projected Jobs Net of Casino Impact Sedwick County Quad Cities Joint Area Plan 2008-2040

	2008	2035	Extrapolated 2040	New
Retail	55	70	73	18
Non-Retail	158	183	188	30
Total	213	253	261	48

* The 2035 projection did not include a breakdown of retail and non-retail. The 2008 ratio was applied to 2035.

Source: Sedwick County Quad Cities Joint Area Plan, 2012-2035; W-ZHA

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According to the EKAY Economic Consultants' Fiscal Impact Analysis¹, the Kansas Star Casino Complex is projected to employ 870 people at build-out.

¹ State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, EKAY Economic Consultants (December, 2010)

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Casino Development Program Current Land Use and Build-Out (Square Feet)

	June, 2012	Build-Out
Temporary Casino	44,100	0
Casino		63,700
Restaurants		28,250
Event Center		100,000
Hotel		188,000
Retail		650
Eq Support Center		251,198
RV Park		100,000
Total	44,100	731,798
Total Jobs	601	870

Source: State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, Appendix 16, EKAY Economic Consultants (December, 2010)

This projection did not identify whether the jobs would be in retail or not. Retail employees were estimated given the Casino Complex's development program.

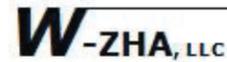
Estimated Retail/Non-Retail Jobs in Casino Complex 2012- Build-Out

	2012	Build-Out	New
Retail	6	96	90
Non-Retail	595	774	179
Total	601	870	269

Source: State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, Appendix 1, EKAY Economic Consultants (December, 2010)

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There are no job projections available for the portion of the Study Area that is south of K-53. The baseline employment projections for the Study Area are summarized on the following table. The baseline projections do not reflect jobs that may spin-off as a result of new development around the Casino Complex.



**Baseline Job Projections Net of Casino-Complex Spin-Off
Study Area
2012-2040**

	New Jobs 2012-2040
Retail	108
Non-Retail	209
Total	317

Source: Sedgwick County Quad Cities Joint Area Plan, 2012-2035; EKAY Impact Analysis; W-ZHA

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THE KANSAS STAR CASINO POTENTIAL SPIN-OFF IMPACTS

The Project

At build-out, the Kansas Star Casino Complex will include a casino, 300 hotel rooms, a number of restaurants and a 4,200-seat equestrian center. The Kansas Star Casino Complex will be developed in three phases. The first phase is the temporary Casino, which is operating today. The second phase will include 1,350 slots, 32 gaming tables, a 5-table poker room, a 50 seat snack bar, a 40 seat food court, a 250 seat buffet, a 115 seat steakhouse, a 100,000 square foot indoor arena with seating for up to 4,200 people, and a 150-room hotel. This phase is currently under-construction and scheduled for completion in early 2013.

Phase 3 will include 500 additional slots, 10 additional game tables, a sports bar, another 150 hotel rooms, an RV park with 60 spaces, and a 24-acre equine event center complex.

At build-out Casino Complex employment is projected to total 870. Casino officials estimate that annual attendance will be 2.7 million. Tourists are expected to represent 25 percent of the Casino Complex's attendees. Once complete, 7,500 people are expected to visit the Casino Complex each day. According to the "City of Mulvane Public Safety Study" the busiest times at the casino complex will be from 6 pm to midnight.

Casino Spin-Off Impact

The findings of the following reports were reviewed to shed light on the casino's impact on households and employment:

- Fiscal and Economic Impact of Casino Gaming: South Central Kansas, Center for Economic and Business Research, W. Barton School of Business, Wichita State University (June, 2007);



- City of Mulvane, Kansas Public Safety Study: Assessing Needs for Emergency Services and Facilities Associated with the Kansas Star Casino and Complementary Development, Jim Heinicke, LLC (March 11, 2010);
- Economic Impacts of Proposed Gaming Facilities, South Central Gaming Zone – Sumner County, CivicEconomics (November 2010)
- A Review of the Ancillary Amenity Elements of Applicant Proposals for the Kansas South Central Zone Kansas Lottery Casino License, Macomber International, Inc. (November 23, 2010);
- State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, EKAY Economic Consultants (December, 2010)
- Business Plan for the Proposed New Kansas Star Equine Event Center in Sumner County, KS, Crossroads Consulting Services (March 2011);
- Working Draft, Sedgwick County Quad Cities Joint Area Plan, 2012-2030, Sedgwick County and the Cities of Derby, Haysville, Mulvane and Wichita (June 21, 2011);

The following table summarizes the employment and household impact of the Kansas Star Casino Complex over its initial seven years of operation. The data was provided by the Casino as part of the casino license application process. This information was included in an Appendix to the Fiscal Impact Analysis conducted by EKAY Economic Consultants.

**Projected Employees and Households New to the Area
Kansas Star Casino Complex**

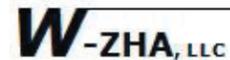
	Est. # of Employees	# of Employees New to the Area	# of New Households New to the Area
Year			
2012	481	92	92
2013	798	129	129
2014	798	129	129
2015	862	135	135
2016	870	137	137
2017	870	137	137

* Analysis assumes only Professional, Manager, Executive and Technical positions will be new to the area. Other jobs are expected to be filled by existing area residents. The "Area" is the local School Districts.

Source: State of Kansas South Central Gaming Zone: Fiscal Impact Analysis of Proposed Gaming Facilities, Appendix 16, EKAY Economic Consultants (December, 2010)

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APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



According to an analysis conducted for the Sedgwick County Quad Cities Joint Area Planning effort, recent employment information (January 2012) provided by the Kansas Star Casino indicates that 58 percent of casino employees live in Sedgwick County, 18 percent live in Sumner County, 12 percent live elsewhere in Kansas, and 12 percent live out of State. Five percent of casino employees reside in Derby, 6 percent live in Haysville, and 7 percent live in Mulvane.

Potential Impacts

The EKAY analysis assumed that all Casino Complex employees in professional, manager, executive and technical positions would likely be new the Wichita Region. Therefore, in the EKAY analysis, the 137 new professional, management, executive and technical jobs represent residential development *potential* near the casino. Other service-oriented employees were assumed to already live in the Wichita region.

According to interviews with economic development professionals from Haysville, Mulvane, and Derby, to date, the casino has had little impact their residential market. The casino is new, however, and it may be that the residential market impact will occur after the casino is fully operational and employees have had time to decide whether they will remain working at the casino.

None of the impact analyses conducted as part of the casino application process addressed the issue of the casino's impact on surrounding land use. Therefore, economic development officials in five comparable communities with casinos were surveyed as to their experience with the casino's impact on adjacent land uses. This information was coupled with literature review to estimate casino land use impacts. The following table summarizes the results of our discussions with economic development professionals.



Casino Land Use Spin-Off Experience
Comparable Casinos

Casino Name	Location	Site	Yr Built	Other Amenity	Add'l Dev	Notes
Diamond Jo Worth	Northwood, IA	Interstate Exit	2006	None	Holiday Inn Express - 60 Rms	State Certified Welcome Center was at this exit before casino; With casino double visitation at Welcome Center; No utilities to date; projecting 5 - 6 new projects - fast food, truck stop, cracker barrel-type restaurant, small retail center
Riverside Casino	Riverside, IA	Off of a State Highway	2007	Golf	Come & Go (gas station, convenience store and Subway); existing gas station added a Godfather's Pizza and an A&W Rootbeer; Condominiums were developed with golf course	Condominiums are now being used as rental and short-term rental for golf course patrons
Prairie Band	Mayetta, KS	Near Interstate	1998	Golf; RV Park; 297 Room Hotel	Gas station/convenience store	Kansas Star will compete; tribal casino
Belterra	Switzerland, IN	Riverboat	2001	600 Room Hotel; Golf Course	Gas station; 60-room Sleep Inn	5 Yrs ago built a connector road that made the casino more accessible to Interstate; Utility issues; not enough traffic to support a McDonalds
French Lick	French Lick, IN	Downtown	2006	Two historic hotels and a golf course	Private investors put up a large waterpark with hotel in the Downtown; Denny's restaurant; Chicago Pizza	Casino is not the economic development emphasis; they are looking to the golf visitor; trying to make the Town a resort destination; casino patron not generating economic development

The literature and the experience of other comparable locations indicate that the casino does not spin-off significant land use development outside of the casino complex. Most casino patrons spend their time and money in the casino. Very few of the communities have seen destination development (like stores or residential) occur as a result of the casino.

The uses that typically follow the casino are designed to intercept the casino patron traffic. The typical land uses include gasoline service stations, fast food restaurants, convenience stores, and limited service hotels. When family-oriented activities are programmed with the casino like a waterpark or resort (and, in the case of Kansas Star, an equine center), family-style restaurants are often mentioned as potential land uses.



KANSAS STAR EQUINE EVENT CENTER POTENTIAL IMPACTS

Equine Center Development Program

Kansas Star’s proposed Equine Event Center is expected to include the following on a 24-acre complex:

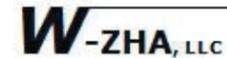
- Indoor heated arena: 100,000 sq. ft., 4,200-seat capacity
- Outdoor covered arena: 45,000 sq. ft.
- Outdoor practice arena: 24,000 sq. ft.
- Livestock pens: 19,500 sq. ft.
- Horse/livestock barns: 4 barns containing 400+ permanent stalls and 160 additional temporary stalls;
- RV park/trailer parking

The facility is expected to host events of local to regional and national significance. Crossroads Consulting Services prepared an initial business plan for the Equine facility. This plan draws upon Crossroads’ experience with equine centers and similar event facilities throughout the nation. Crossroads projects that the Equine Center will host approximately 26 to 31 events, generating 99 to 117 event-days and 215,700 to 255,150 attendee days in a stabilized year. Among these, 21 to 24 (77 to 80 percent) are likely to be equine-related; other events are expected to include concerts, festivals, and consumer shows.

**Attendee - Stabilized Year of Occupancy
Proposed New Equine/Rodeo Complex in Sumner County**

Event Type	Participant Days	Spectator Days	Total Attendee Days
Equine/Rodeo Events			
Level 1	31,500 to 37,800	70,000 to 84,000	
Level 2	25,200 to 28,350	72,000 to 81,000	
Subtotal	56,700 to 66,150	142,000 to 165,000	198,700 to 231,150
Non-Equine/Rodeo Events			
Concerts/Festivals		8,000 to 12,000	
Consumer/Expo Shows		9,000 to 12,000	
Subtotal		17,000 to 24,000	17,000 to 24,000
Grand Total	56,700 to 66,150	159,000 to 189,000	215,700 to 255,150

Source: "Civic Economics, Economic Impacts of Proposed Gaming Facilities," Nov. 2010; W-ZHA
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Potential Retail and Eating/Drinking Impact

In estimating likely retail spending by visitors, Crossroads’ survey results provide the following indications of spending levels:

Meals/person/day: Crossroads estimates that 71 percent of attendees would spend between \$26 and \$50 per day. Local and “low impact” attendees would spend less. In a separate analysis, Crossroads estimated total (including lodging) spending at \$109 per day for high impact attendees, and \$25 per day on low-impact attendees.² It is reasonable to assume that food and beverage spending accounts for most of the \$25 per day spending figure and the \$79 differential is largely attributable to lodging expenses.

Other Retail Expenditures/person/day: In addition to meals, survey findings indicate that 47 percent – the largest share -- of attendees would spend \$26 to \$50 on retail merchandise. While this finding is similar to the finding regarding meals expenditures, 35 percent would spend less than \$25 per person. This is a comparably high percentage; just 18 percent of respondents would spend \$25 or less on meals).

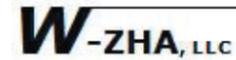
Applying these survey findings, low- and high-range projections estimate likely daily food & beverage spending at \$30 and \$50 per person, and \$25 to \$40 for other retail expenditures. Further assuming that 70 to 80 percent of this spending would take place within roughly ten miles of the facility,³ these levels of spending, as applied to the low and high attendee projections, would generate \$8 to \$16 million dollars in local retail and restaurant spending.

² The relevant section containing the details of this discussion has not been made available to W-ZHA, LLC. Nonetheless, a review of another Crossroads analysis for an event center in York County, SC shows that “Low impact” attendees include small, local-market events, while “regional and national championships and events with more than four event-days are categorized as high impact.” In this other analysis, Crossroads provides clarification that such spending constitutes spending outside of the equine facility.

³ 71 percent of respondents stated a preference for amenities within 10 miles of the facility; the remaining 29 percent stated a preference for amenities within 25 miles. This result supports an assumption that 20 to 30 percent of restaurant and retail spending would flow outside of the immediately surrounding (10 mile radius) market.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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Kansas Star Equine Center Potential Land Use Impact Retail and Eating and Drinking Spending

	Low	High
Attendee-days	215,700	255,150
Non-Lodging Spending	\$55	\$90
Eating and Drinking	\$30	\$50
Other Retail	\$25	\$40
Capture Within 10 Miles of Facility	70%	70%
Spending Within 10-Mile of Kansas Star		
Eating and Drinking	\$4,529,700	\$8,930,250
Other Retail	\$3,774,750	\$7,144,200
Sales /SF		
Eating and Drinking	\$350	\$400
Other Retail	\$250	\$350
Potential Square Feet		
Eating and Drinking	13,000	22,000
Other Retail	15,000	20,000

Source: Crossroads Consulting; W-ZHA
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Within this range, it should be noted that the higher spending levels would be contingent on (1) the facility's ability to consistently perform at the higher range of its projections, and (2) attendee spending at the higher projected levels. Given this uncertainty, the more conservative outlook projects that the Kansas Star Equine Event Center could generate roughly 28,000 square feet of "spinoff" retail and restaurant development within 10 miles of the Kansas Star facility.⁴

⁴ The conservative outlook is further warranted in light of the finding – subsequent to Crossroads' business plan – that the Kansas Coliseum – now known as Kansas Pavilions – in Park City, would remain open as a competitive facility to host equine events.

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Kansas Star Equine Center Potential Land Use Impact Retail and Eating and Drinking Spending

	Low	High
Attendee-days	215,700	255,150
Non-Lodging Spending	\$55	\$90
Eating and Drinking	\$30	\$50
Other Retail	\$25	\$40
Capture Within 10 Miles of Facility	70%	70%
Spending Within 10-Mile of Kansas Star		
Eating and Drinking	\$4,529,700	\$8,930,250
Other Retail	\$3,774,750	\$7,144,200
Sales /SF		
Eating and Drinking	\$350	\$400
Other Retail	\$250	\$350
Potential Square Feet		
Eating and Drinking	13,000	22,000
Other Retail	15,000	20,000

Source: Crossroads Consulting; W-ZHA
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Potential Lodging Impact

In addition to retail and eating and drinking development, the Kansas Star Equine Event Center may also generate new market demand for lodging facilities. In the Crossroads Business Plan, survey results indicate that 55 percent of attendees would come from out-of-state and 54 percent of attendees would be likely to stay overnight. Of these overnight visitors, the Crossroads Business Plan survey results indicate that 41 percent would stay at a hotel (others would stay at RV parks, with friends, etc.).

Applying these findings to Crossroads' attendee projections, new annual lodging demand would amount to 48,000 to 57,000 new room-nights. As shown in the following table, this would generate an average of 130 to 155 rooms per day; assuming a targeted occupancy rate of 75 percent, this would support roughly 170 to 206 new rooms. Assuming that 70 percent of this demand will be captured by hotels within 10 miles of the Kansas Star Equine Center, the Center has the potential to generate demand for 130 to 150 hotel rooms within 10 miles of the Kansas Star.



Kansas Star Equine Center Potential Land Use Impact Hotel Uses

	Low	High
Attendee-days	215,700	255,150
Overnights	54%	54%
Overnights At Hotel	41%	41%
Room-Night Demand	47,756	56,490
Room-Night Demand /Day	131	155
Supportable Rooms @ 70% Occupancy	187	221
Capture Within 10 Miles of Facility	70%	70%
New Hotel Room Potential w/in 10 Miles	130	150

Source: Crossroads Consulting; W-ZHA
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It is likely that much of this demand would be served by either the hotel proposed as a component of the overall Kansas Star development or at other nearby facilities.⁵

⁵ Preliminary research indicates that a Hampton Inn, Sleep Inn and Express Inn are located within approximately 6 to 10 miles of the Kansas Star property.



MARKET FACTORS AND CONCLUSIONS

Residential Land Uses

None of the research indicated that the casino will dramatically change residential market forces. The EKAY Fiscal Impact Analysis did, however, conclude that there was the potential for 137 new households to locate near the casino as a result of their employment at the Casino. The number of households with the potential to move was based on the number of new employees in professional, management, executive and technical positions.

These employees could move anywhere in the Wichita Metropolitan Area. It is likely that most of these employees will locate in established neighborhoods with goods and services nearby. We estimate that, at the most, 15 to 20 percent of these employees will likely move to a large lot single family home in the Study Area. This translates into approximately 20 to 27 new housing units.

Restaurants and Retail

Restaurant and retail uses, consider the following factors when considering an investment location:

- General Location and Demographics
- Site Position
- Traffic
- Competition
- Cost

Retail and restaurant investors are interested in locations with either a concentration of target households or nearby traffic generators like other retail, business centers or “anchors” like the casino. Retail and restaurants prefer locations with both evening and daytime activity.

In terms of a specific site, appropriate zoning, strong visibility and access and enough land for parking are key considerations for retail and restaurant land uses. In non-Downtown environments, traffic volume is very important.

The location and strength of competitors is an important factor influencing retail and restaurant investment. Finally, project economics in terms of cost to acquire and develop land as well investment return are important considerations.

The Study Area’s strongest advantages are the Casino Complex and Interstate 35 access and visibility. Otherwise, the Study Area is not a natural retail location -- there is not a concentration of households and significant residential growth is not projected. For shopping, there are competitive locations to the north and west that are convenient to the Study Area and have the added advantage of a critical mass of retail and services.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS



Given the Study Area's market position, interchange-style retail is most likely over the next 30 years with a limited amount of service retail. The retail projection is detailed in the following table.

Projected Retail Development 2012-2040					
Establishment Type	Land Use Type	Sq Ft /Estab		Employees	
		Low	High	Low	High
Truck Stop	Retail	8,000	10,000	27	33
Gas Station/Convenience/Fast Food Store	Retail	5,000	7,000	17	23
Family-Style Restaurant	Eat/Drink	5,000	7,000	17	23
Fast Food	Eat/Drink	2,500	4,000	8	13
Small Neighborhood Center	Retail/Service/Eat/Drink	12,000	15,000	40	50
Total		32,500	43,000	108	143

Source: Interviews with Economic Developer in Comparable Communities with Casinos; W-ZHA
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The fast food establishment will likely locate in the northern portion of the Study Area on US-81, where the daytime population is more significant.

Hotel Uses

Like retail, hotel uses seek sites near sales and traffic generators like interchange locations, business centers or "anchors" like the casino and Equine Center. Other key location factors include site visibility, traffic counts, zoning and project economics. From a market perspective, hotel operators take into consideration seasonality, tourism and the competition.

A 150-room hotel is currently under-construction at the Kansas Star casino. A second 150-room hotel is planned in the future. Part of the casino business model is to provide the full-breadth of services for their casino patron, under the same roof. This allows the casino to manage the experience and fully capitalize on patron spending.

Currently, there is a Sleep Inn in Haysville and a number of hotels in Derby. Like retail these competitive locations benefit from a stronger local market economy. Each have interstate access, a concentration of households, at place employment, goods and services nearby and, in the case of Derby, McConnell Air Force Base.

If there were only the Kansas Star casino, it is unlikely that additional hotel rooms would be developed in the Study Area. The casino hotels have price and location advantages. However, the Equine Center will generate room night demand. If market synergies occur with the Polo Ranch in US-81 and other equine-related amenities like a trail are developed, the Study Area would be a competitive limited service hotel location. By 2040, we conclude that there is the potential for a 65- to 90-room limited service hotel in the Study Area targeted to Interstate traffic and the Kansas Star Casino Complex's activities.



Hotel Potential 2012-2040		
	Low	High
Casino Demand (Rooms)	300	300
Equine Center Demand (Rooms)	130	150
Total Demand (Rooms)	430	450
Projected Casino Hotel Rooms	300	300
Net Potential (Rooms)	130	150
Study Area Capture	50%	60%
New Hotel Rooms	65	90

Source: Crossroads Consulting; W-ZHA
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Light Industrial Land Uses

Light industrial development is driven by land value, zoning and access to both major highways and labor force. There is an industrial park immediately north of the Study Area in US-81 in Haysville. There are few light industrial uses in the Study Area and those that exist are to the north on US-81.

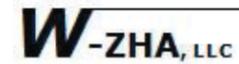
The potential for light industrial development is enhanced with the increase in traffic along US-81 due to the casino. This local traffic makes US-81 more visible to the market. At the northern boundary of the Study Area, US-81 is within a 15-minute drive of Metropolitan Area's employment center. According to interviews land is valued at less than \$150,000 per acre on US-81, which is inexpensive.

The major constraint to light industrial development in the northern portion of the Study Area is the lack of utilities south of 79th Street. However, given the increase in market visibility on US-81, the market will likely support a small light industrial uses totaling 20,000 to 40,000 square feet. At 1,000 square feet an employee this translates into 20 to 40 additional light industrial jobs.

From a market perspective, the potential for light industrial development in the Sumner County portion of the Study Area is much more limited due to its rural character. The portions of the Study Area near the US-81/K-53 intersection and points south are not as convenient to the Metropolitan Area's business concentration. The Interstate is not particularly advantageous to light industrial uses here because it is a toll road.

APPENDIX 2: DEMOGRAPHIC, ECONOMIC & MARKET ANALYSIS

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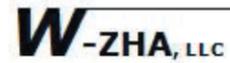


2040 STUDY AREA HOUSEHOLD AND JOB PROJECTION CONCLUSION

Study Area Projections 2012 - 2040		
	Units/Households	Jobs
Baseline Projections		
Residential	242 - 242	
Retail & Restaurants		108 - 108
Non-Retail		209 - 209
Subtotal		317 - 317
Casino Spin-Off		
Residential	20 - 27	
Retail & Restaurants		108 - 143
Non-Retail		42 - 70
Subtotal		150 - 213
Total	262 - 269	467 - 530

Source: W-ZHA
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Spin-Off Land Use Conclusions

The Casino Complex is expected to have an impact on land use development potential in the Study Area. The analysis concludes that the Casino Complex will generate demand for an additional 20 to 27 housing units in the Study Area above the Baseline projection. By 2040, the Casino Complex will generate demand for an additional limited service hotel of 65 to 90 rooms as well as 52,500 to 83,000 square feet of retail, restaurant and light industrial demand. The spin-off uses will require between 150 and 213 new jobs.

Casino Complex Land Use Spin-Off in Study Area 2012 - 2040				
	Units/Households	Rooms	Square Feet	Jobs
Residential	20 - 27			
Retail & Restaurants			32,500 - 43,000	108 - 143
Non-Retail				
Hotel		65 - 90		22 - 30
Light Industry			20,000 - 40,000	20 - 40
Total	20 - 27	65 - 90	52,500 - 83,000	150 - 213

Source: W-ZHA
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APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

INTRODUCTION

This document provides an overview of the modeling process used to support the Casino Area Transportation Plan. A Study Area was developed that can generally be described as extending from the Kansas Star Casino east along K-53 to the City of Mulvane and north to 87th Street along U.S.-81. A larger modeling area was also established allowing the model to better represent route choices. The Base Year for the demand models is 2010 and the plan horizon year is 2040. To support Time of Day analysis, daily, AM and PM peak period travel demand models were developed.

PLANNING SUBAREA

Study Area

To assess the impacts of the Kansas Star Casino during the AM and PM peak hours the Study Area depicted in [Exhibit A3.1](#) was defined. In the east-west direction the Study Area straddles K-53 (119th Street) from Webb Road in the city of Mulvane to Seneca Road west of the intersection of K-53 and U.S. 81 (Broadway Road). In the north south direction the Study Area extends along U.S. 81 from 130th Street to 87th Street. The key intersections located in the study area are:

- K-53 and Northbound K-15 Ramp
- K-53 and Southbound K-15 Ramp
- K-53 and Blair Street
- K-53 and Hillside Road
- K-53 and the KTA Connector
- K-53 and North Casino Drive
- K-53 and U.S. 81
- U.S. 81 and K-55
- U.S. 81 and 142nd Street
- U.S. 81 and North Casino Drive
- U.S. 81 and 111th Street
- U.S. 81 and 95th Street
- U.S. 81 and 87th Street

Model Area

In order to better model traffic patterns to, from, and through the study area a larger model area was defined. This area is illustrated in [Exhibit A3.2](#). The model area extends as far south as 80th Avenue, near the city of Belle Plaine and as far north as 47th Street in the city of Wichita. On the east the furthest extent of the model area is 159th Street while on the west the model area extends to Millbrook Road.

TRAFFIC DATA

AM and PM peak hour traffic counts were collected at the key study intersections between March 21, 2012 and July 18, 2012 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. In general, the peak hours for all study intersections were determined to be from 7:00 AM to 8:00 AM and from 4:45 PM to 5:45 PM. Twenty-four hour counts were also collected during the week of May 21, 2012 at the following locations:

- 90th Street East of U.S. 81
- Broadway Road south of 87th
- Broadway Road between 144th and North Casino Drive
- K-53 between Hydraulic Avenue and Oliver Road
- K-15 and 1st Street

The existing daily traffic volume on U.S. 81 is approximately 5,700. Existing daily traffic volume on K-53, between K-15 and 1st Street in the city of Mulvane, is approximately 1,700 and 4,300 between Hydraulic Avenue and Oliver Road. Existing daily traffic volumes in the model area are shown on [Exhibit A3.3](#) and detailed peak hour turning movements in the Study Area are shown in [Exhibit 1](#) through [Exhibit 3](#) in the report.

To aid with model development existing ADT data was collected from the following sources: Sedgwick County, the city of Wichita, and the Kansas Department of Transportation. ADT data were converted to peak hour traffic volumes, for use in peak period model validation, using the methodology outlined below:

- AM Peak
 - Peak period traffic
 - 10 percent of ADT occurs during the AM Peak
 - Directional splits
 - North – South roads
 - 60 percent northbound
 - 40 percent southbound
 - East – West roads west of I - 35
 - 35 percent westbound
 - 65 percent eastbound
 - East – West roads east of I – 35
 - 60 percent westbound
 - 40 percent eastbound
- PM Peak
 - Peak Period traffic

- 12 percent of ADT occurs during the PM Peak
- Directional splits
 - North – South roads
 - 40 percent northbound
 - 60 percent southbound
 - East – West roads west of I-35
 - 65 percent westbound
 - 35 percent eastbound
 - East – West roads east of I-35
 - 40 percent westbound
 - 60 percent eastbound

Existing AM and PM peak period volumes are shown in [Exhibit A3.4](#) and [Exhibit A3.5](#).

DEMAND MODEL DEVELOPMENT

Model Roadway Network

The model area network north of K-53 and the area around the city of Mulvane was taken from the current WAMPO regional model. Additional network was added to the south covering an area roughly bounded by K-53 on the north, 80th Avenue on the south, Seneca Road on the west, and Woodlawn Road on the east. Key attributes for these additional links, e.g., number of lanes and posted speed, were based on a review of Google Earth photography and supplemented by TranSystems' staff site visits. Model attributes consistent with the WAMPO model for all links were estimated for daily and peak period models.

[Exhibit A3.6](#) illustrates the facility type of roadways in the model area network. Within the study area K-53 is Principal Arterial from Webb Road in the city of Mulvane to Broadway Road. Between Broadway Road and Seneca Road 119th Street becomes a Major Collector. It is a two-lane roadway (one lane in each direction) along its entire length. The posted speed limit varies from 30 mph on the east (within the city of Mulvane) to 55 mph on the west.

U.S. 81 (Broadway Road) is a Principal Arterial for its entire length within the Study Area. It is a two lane roadway (one lane in each direction) with a posted speed limit of 55 mph south of 95th Street and 50 mph north of 95th Street.

Two future year roadway networks were tested during this Study. The 2040 Base network assumed no capacity improvements to any of the roadways within the model area between the Base Year (2010) and the Future Year (2040). The 2040 Conceptual Network included the Base network plus capacity enhancements programmed into the WAMPO 2040 model, i.e., additional

APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

lanes, on several roadways within the northern portion of the model area. The capacity enhancements also included a new bridge over the Arkansas River at 95th Street. The location of the capacity enhancements is depicted in **Exhibit A3.7**.

It should be noted that the purpose of the model developed for this Study is to assess the impact of the anticipated development on the roadways within the Study Area. The testing of the capacity enhancements was done only to assess the potential impact of these improvements on traffic within the Study Area. For example, what impacts might a new bridge at 95th Street have on K-53? Model results should not be used to assess potential demand for these capacity enhancements, because they are outside the Study Area. For example, what level of future traffic can we expect on a new bridge on 95th Street?

Traffic Analysis Zone (TAZ) System

North of K-53 and in the vicinity of the city of Mulvane the starting point for the development of the TAZ system for this study was the TAZ system from the WAMPO regional model. Many of the WAMPO TAZs were subdivided in order to better reflect development patterns and facilitate a more dispersed pattern of trip generation than was possible with the larger WAMPO TAZ. South of K-53 TAZ were defined to be consistent with the TAZ to the north and reflect the density of development.

The CATP and WAMPO TAZ system are shown in **Exhibit A3.8**. Within the model area there are 146 internal TAZ and 32 external stations.

Socioeconomic Data

The population, dwelling units, and employment used in the development of the 2010 and 2040 demand models are summarized in **Table A3.1**. Originally included in the data set provided by Prime Consultant PEC were data for total population, dwelling units, median income, as well as retail, non-retail and total employment. During the model development process an estimate of service employment was made for the purposes of developing trip generation estimates.

Demand Model Estimation

Daily, AM Peak, and PM Peak travel demand models were developed using TransCAD software.

Trip generation and distribution were estimated using the internal capabilities of the TransCAD software. Trip generation was estimated using techniques from NCHRP 365. The Kansas Star Casino itself was treated as a special generator. Daily and peak period trip generation was based on the analysis conducted for the Kansas Star Casino Traffic Impact Analysis. Trip distribution was estimated using the TransCAD internal gravity model application.

For each time period, model validation focused on making modifications to network attributes and trip tables to bring model volumes into an acceptable level of agreement with observed volumes. Network attributes that were modified included BPR volume delay function parameters, link free flow travel time, and capacity. Trip tables were adjusted to insure that the number of origins and destinations being generated by the Kansas Star Casino were consistent with the traffic impact study prepared for the Casino development. As a last validation step, TransCAD's Origin Destination Matrix Adjustment (ODME) methodology was employed to improve the models ability to replicate observed volumes.

Table A3.2 compares the observed and modeled ADT volumes within the Study Area. Most links have a modeled volume within 10 percent of the observed volume. The Percent Root Mean Square Error (RMSE) statistic is a standard statistic used in travel demand forecasting to judge the correspondence between modeled and observed volumes. When applied to model flows versus counts, Percent RMSE values are usually between 10 and 100. 10 percent usually describes flows that are very similar to the counts on a link-by-link basis, while 100 percent usually describes flows that are very different to the counts. The Percent RMSE for counts within the study area is 9.9 percent.

The model to estimate service employment was based on data available from the currently on-going WAMPO model update. The model developed was Service Employment = 0.099(retail employment) + 0.207*(total employment) + 0.017*(development density) and had an R2 of 0.72.*

National Cooperative Highway Research Program. NCHRP Report 365: Travel Estimation Techniques for Urban Planning. Washington, D.C., 1998.

TranSystems Corp., Traffic Impact Analysis: Kansas Star Casino. Prepared for YWS Architects, September 2010.

Caliper Corporation. Travel Demand Modeling with TransCAD 6.0. 2012. Page 242.

Table A3.1: Model Input Summary

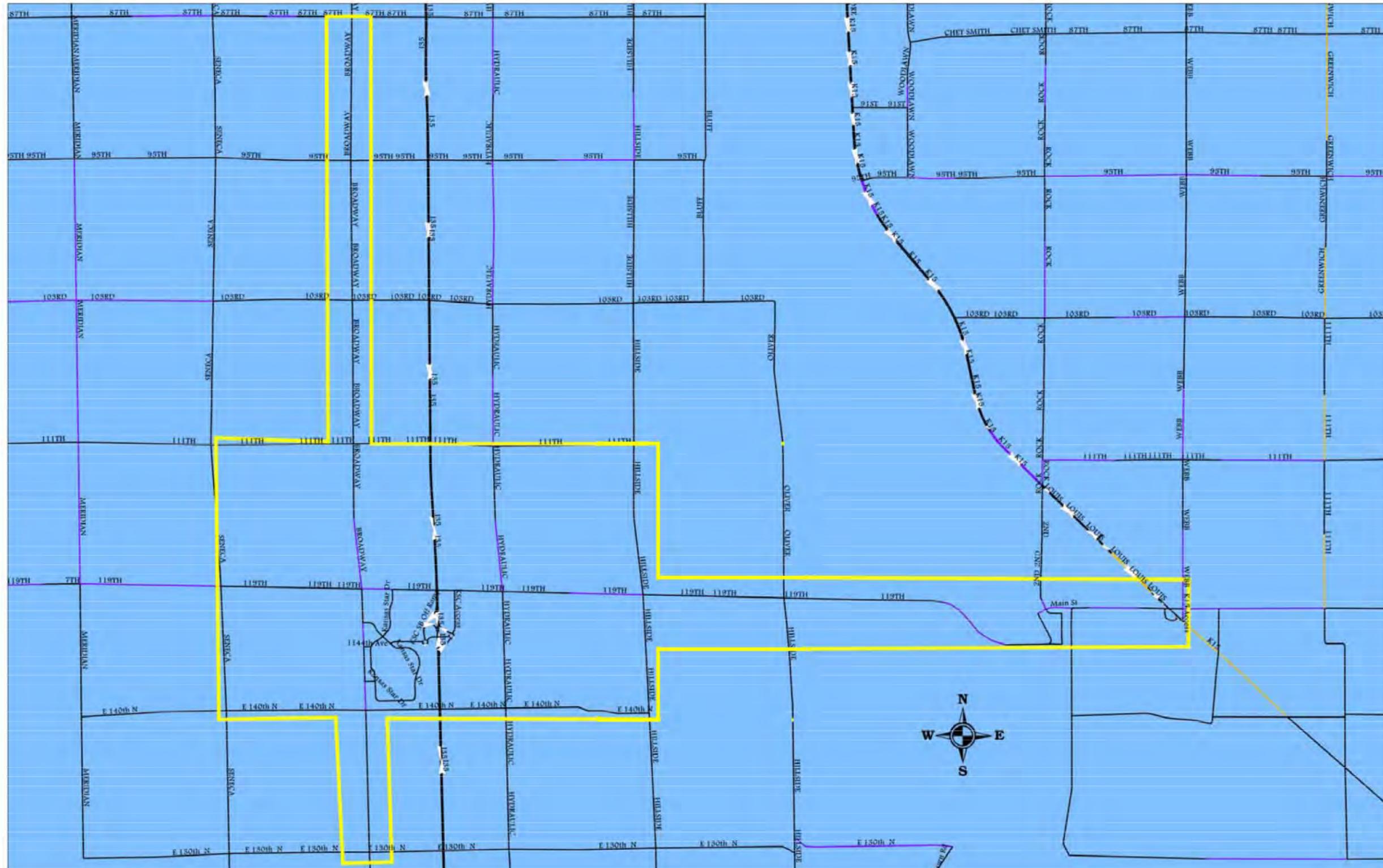
Study Area ¹	2010	2040	Change	
			Number	Percent
Population	4,511	4,906	395	9%
Dwelling Units	1,702	1,920	218	13%
Retail Employment	243	493	250	103%
Service Employment	593	703	110	19%
Other Employment	1,348	1,562	214	16%
Total Employment	2,184	2,758	575	26%
Model Area	2010	2040	Change	
			Number	Percent
Population	53,270	77,851	24,581	46%
Dwelling Units	22,244	30,885	8,641	39%
Retail Employment	3,910	5,377	1,467	38%
Service Employment	4,287	5,483	1,196	28%
Other Employment	5,352	6,533	1,181	22%
Total Employment	13,548	17,389	3,841	28%

Table A3.2: Observed & Modeled ADT Volumes

Route	Location	Observed	Modeled	Difference	
				Number	Percent
K-53	East of US-81 (Broadway Rd)	2,600	2,424	-176	-7.3%
K-53	West of Hillside Rd	4,300	4,145	-155	-3.7%
K-53	West of Pope Rd	3,615	4,061	446	11.0%
K-53	West of 2nd Ave.	5,705	4,884	-821	-16.8%
K-53	East of 2nd Ave	3,140	3,146	6	0.2%
K-53	West of K-15	1,720	2,187	467	21.4%
K-15	NB Ramp to K-53	1,030	998	-32	-3.2%
2nd Ave	North of K-53	5,575	5,648	73	1.3%
Broadway Rd	North of K-53	3,020	3,005	-15	-0.5%
Broadway Rd	South of K-53	5,684	5,046	-638	-12.6%
Broadway Rd	North of 140th	3,960	3,950	-10	-0.3%
Hydraulic Ave	North of K-53	1,810	1,791	-19	-1.1%
Oliver Rd	South of K-53	3,515	3,479	-36	-1.0%
Total		45,674	44,764	-910	-2.0%
Percent Root Mean Square Error 9.9%					

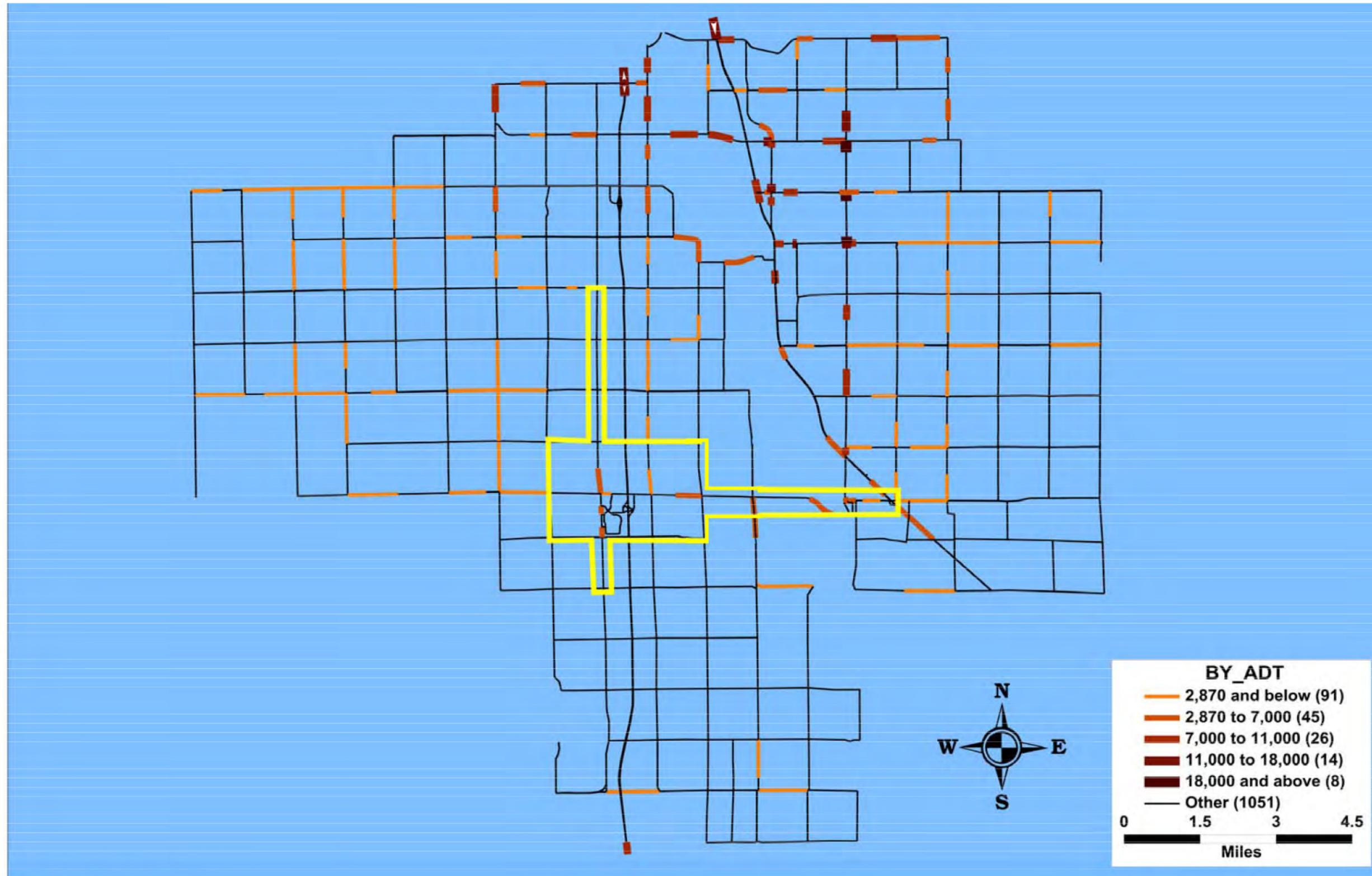
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.1: Study Area



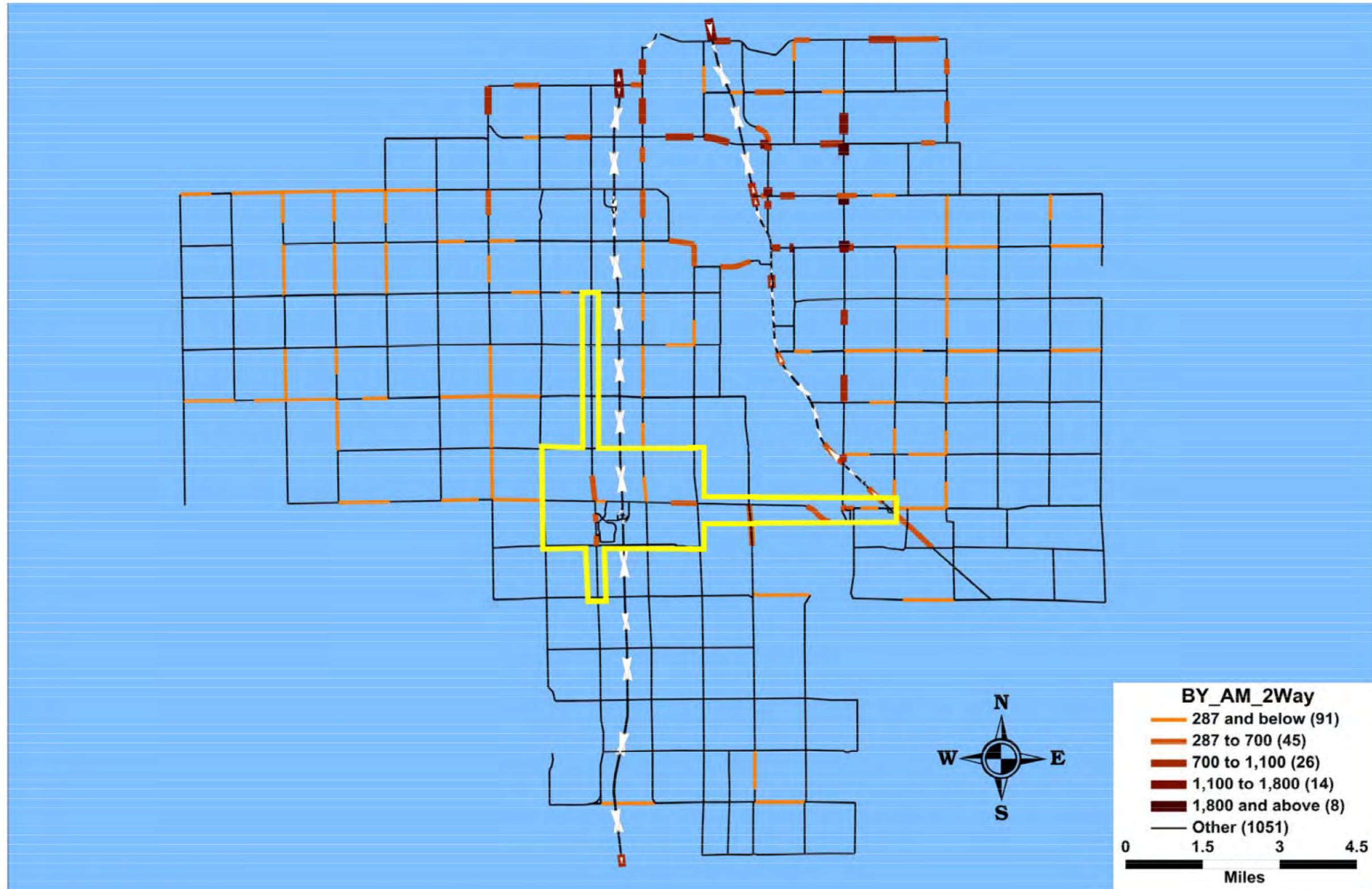
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.3: Existing Daily Traffic Volumes



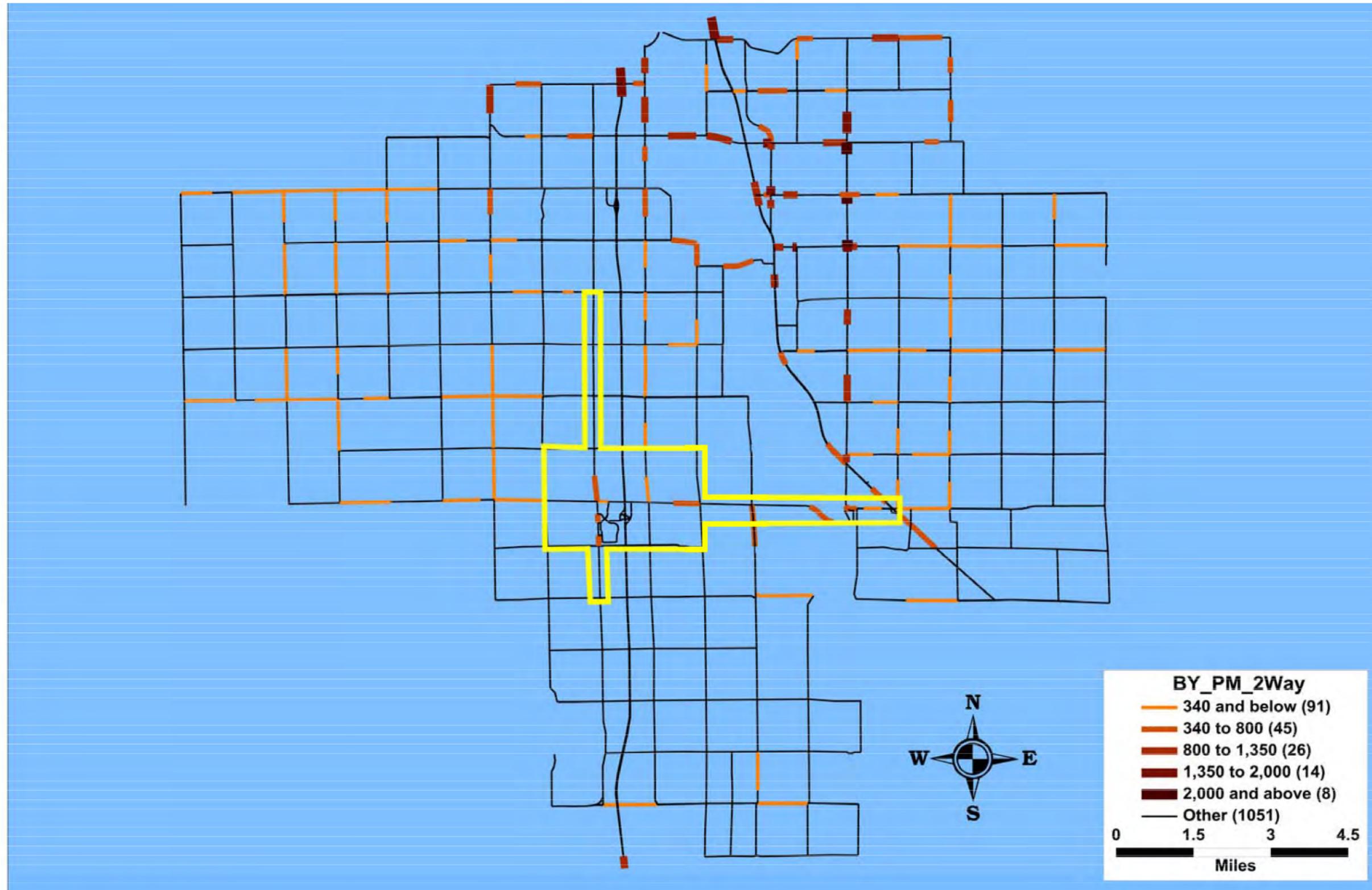
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.4: AM Peak Period Volumes



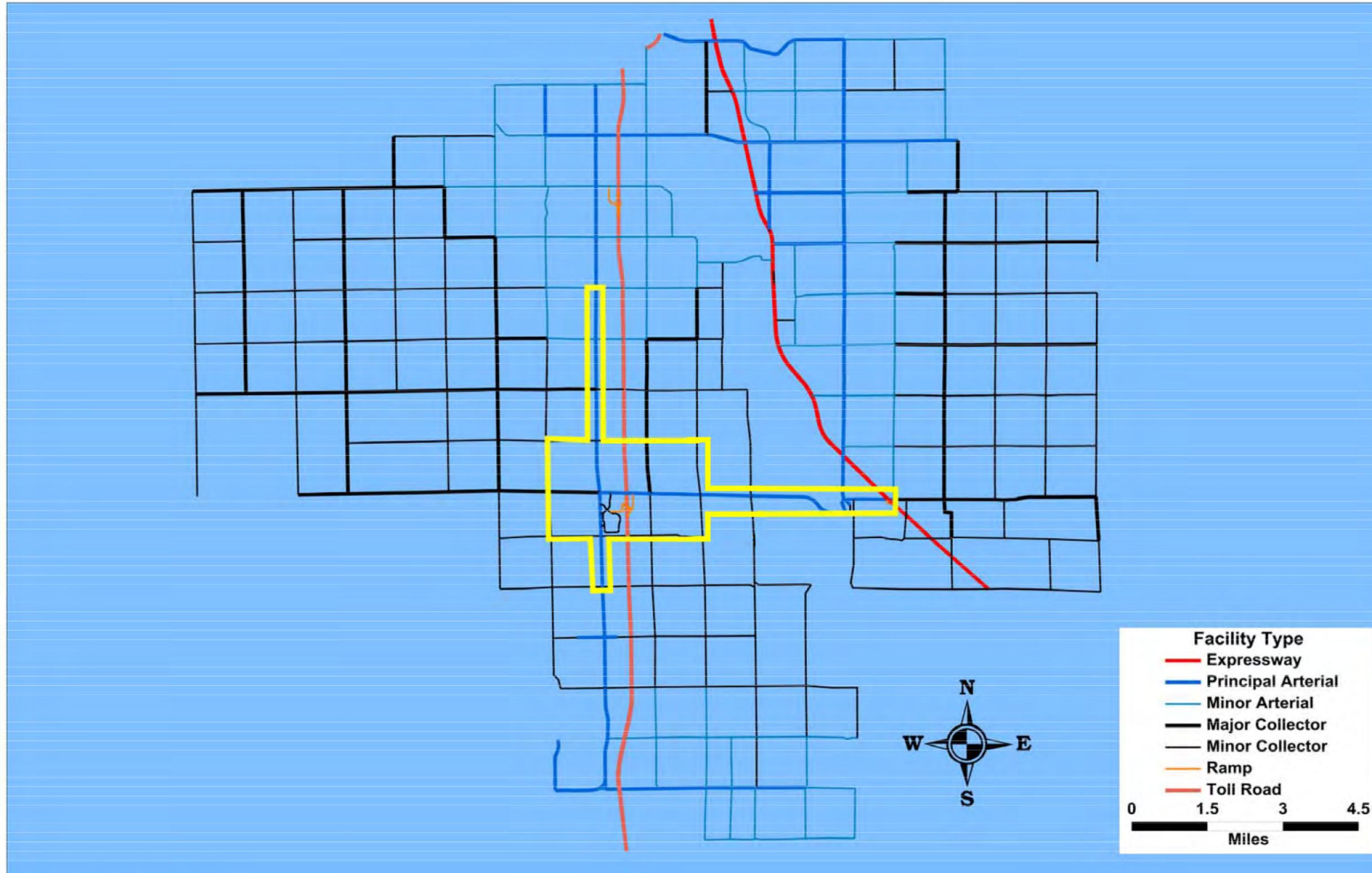
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.5: PM Peak Period Volumes



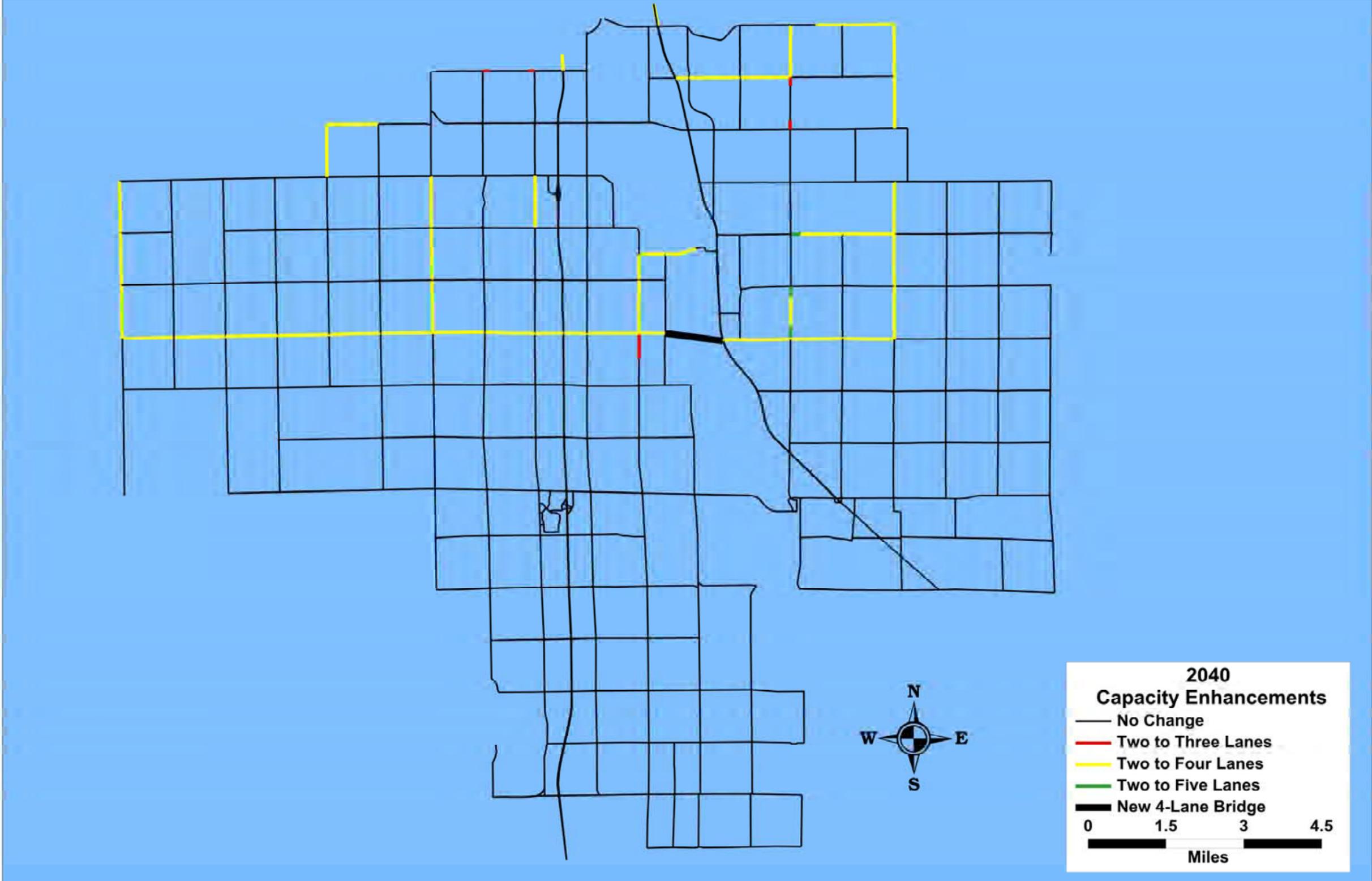
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.6: Roadway Facility Type



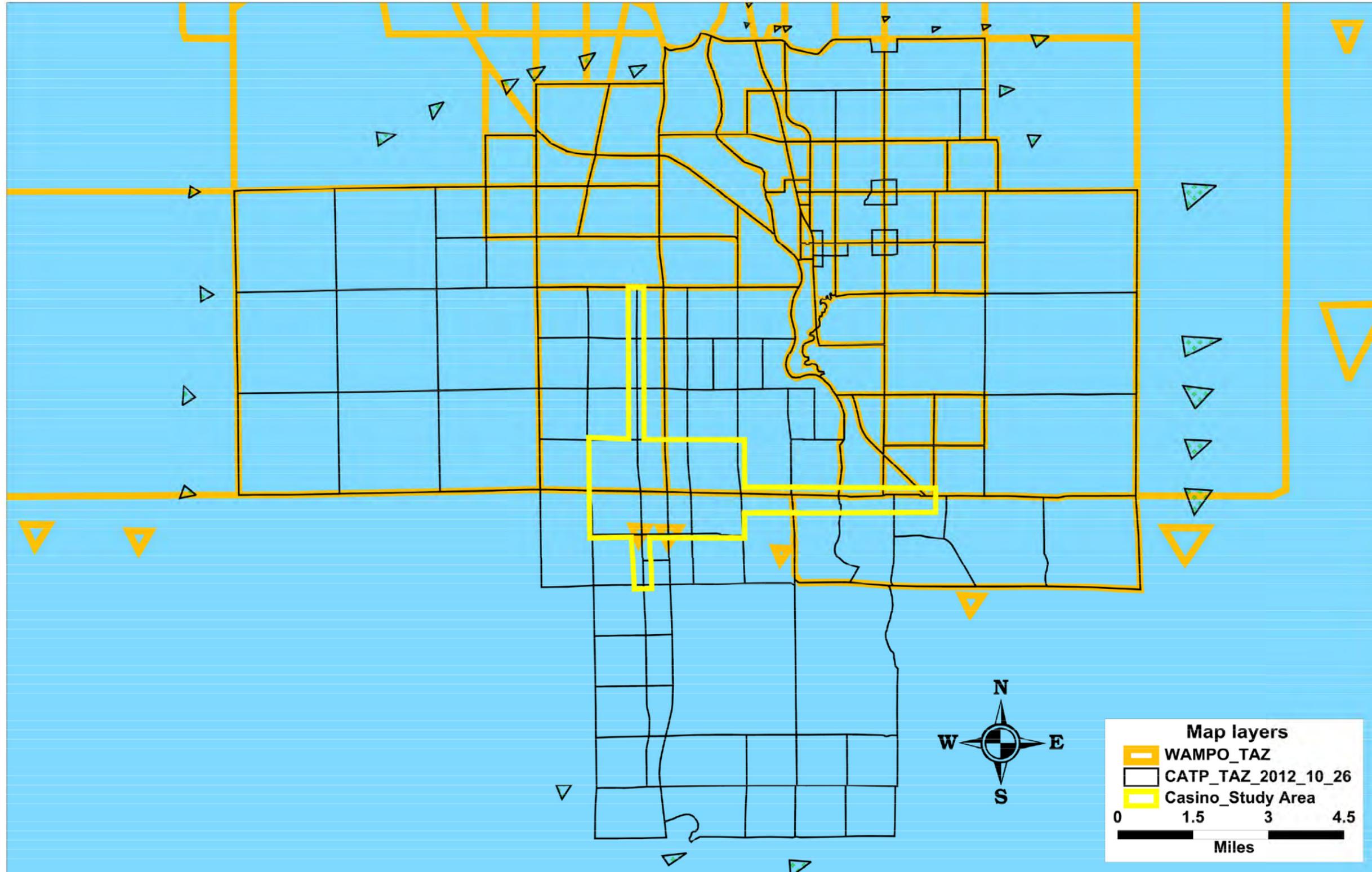
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.7: Location of Capacity Enhancements



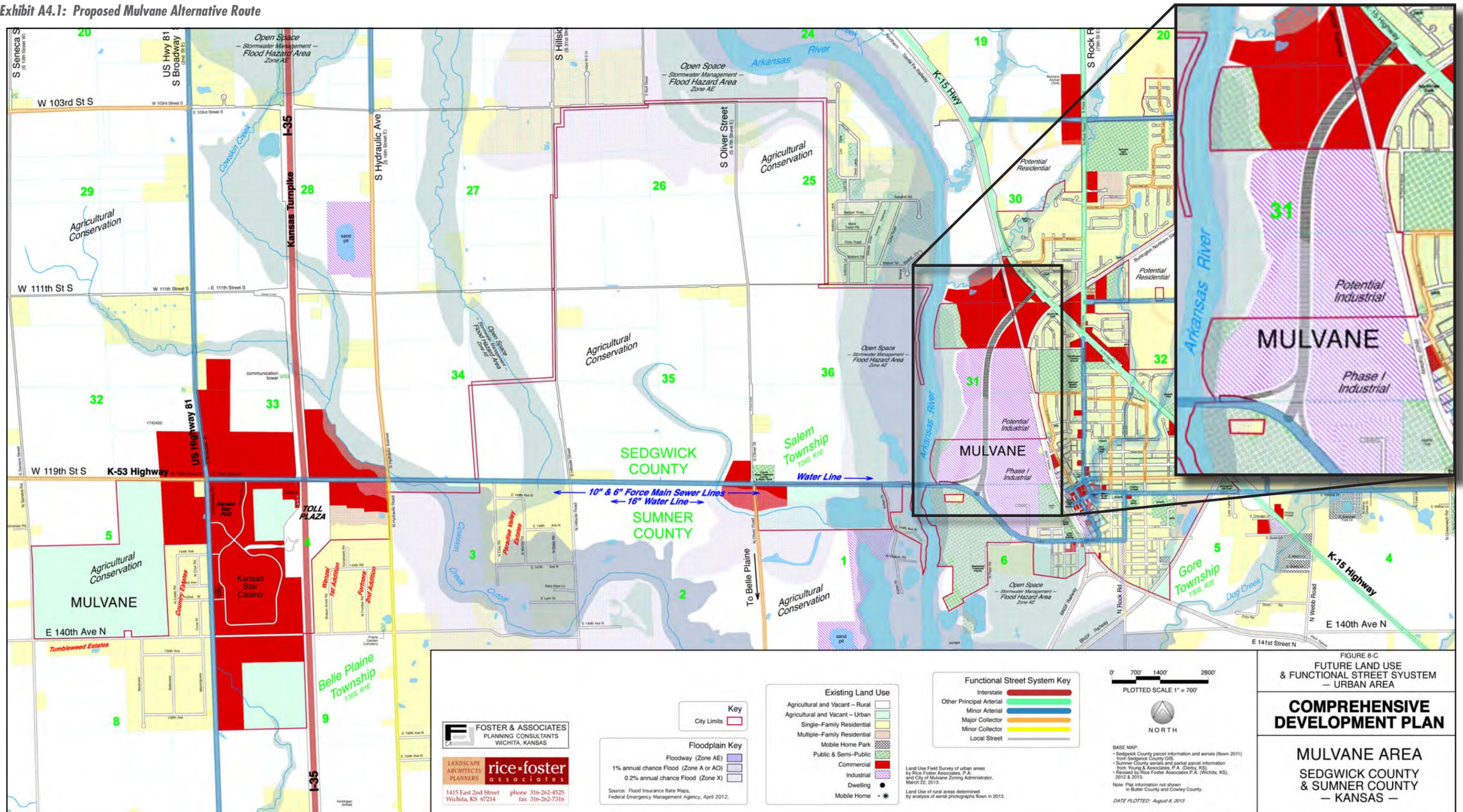
APPENDIX 3: TRAVEL DEMAND MODEL DOCUMENTATION

Exhibit A3.8: CATP & WAMPO Traffic Analysis Zones



APPENDIX 4: MULVANE ALTERNATIVE ROUTE

Exhibit A4.1: Proposed Mulvane Alternative Route



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APPENDIX 5: ACCESS MANAGEMENT INFORMATION

IMPORTANCE OF ACCESS MANAGEMENT

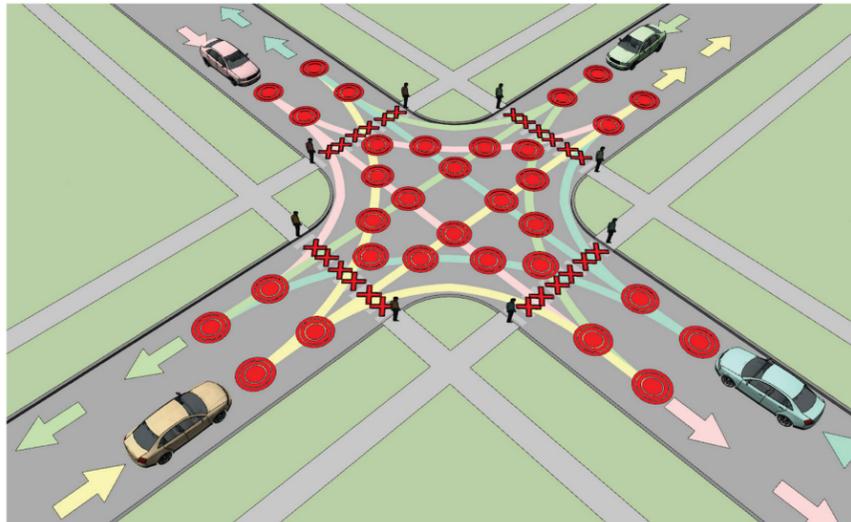
The Transportation Research Board (TRB) Access Management Manual defines access management as “the systematic control of the location, spacing, design, and operations of driveways, median openings, interchanges and street connections to a roadway.” Each driveway and intersection along a roadway creates a potential point of conflict where travel paths may cross one another. They also cause friction within the traffic stream as vehicles reduce speed to make turning movements.

A conflict point is a location where the potential exists for a vehicle to collide with another road user, whether it is another vehicle, pedestrian or bicyclist. The typical four-way, two-lane intersection has 56 conflict points of which 32 are vehicle-to-vehicle conflicts and 24 are vehicle-to-pedestrian conflicts. This is illustrated in **Exhibit A5.1**.

Exhibit A5.1: Intersection Conflict Points

CONFLICTS

2-LANE ROAD STANDARD INTERSECTION



32 VEHICLE TO VEHICLE CONFLICTS

24 VEHICLE TO PEDESTRIAN CONFLICTS

Access management improvements to typical intersections, such as dedicated turning lanes, result in fewer overall conflict points. Research by the TRB indicates that an estimated 40% of crashes occur at access locations. The addition of dedicated left turn lanes alone reduces crashes an average of about 50% and reduces rear-end collisions an average of 74% thereby improving safety for all road users.

Access is managed through a variety of common methods and design treatments further detailed in the following section. Several of these access management techniques include:

- Medians
- Turn lanes
- Roundabouts
- Proper traffic signal timing
- Frontage roads
- Appropriate driveway spacing

Properly executed access management offers many potential benefits to a variety of transportation system users at relatively low costs. This high benefit-to-cost ratio is the main reason it has become an essential part of transportation system design in the United States. In recent decades, taxpayers have begun demanding good infrastructure investments to maximize the dollars spent. Access management delivers. To illustrate this point, some of the major benefits of good access management are listed below.

- Preserve highway capacity and reduce crashes.
- Protects public investment by reducing the need for costly roadway improvements.
- Faster, safer, more efficient travel.
- Improved access to businesses and increased business vitality.
- Relatively low-cost to implement compared to adding capacity.
- Return on investment is measurable in travel time savings and reduction in vehicle crashes.

ACCESS MANAGEMENT TECHNIQUES

To achieve the safety and efficiency goals of access management, a variety of design techniques are employed. This section describes a few commonly used access management design techniques that may have some application within the study area or within the Haysville area community. This is by no means an exhaustive list. Each technique described in this section has a variety of benefits when used in the appropriate situation. The benefits of some of these common techniques are outlined in the **Table A5.1** on the right.

Table A5.1: Access Management Techniques and Benefits

Access Management Benefit	Access Management Technique					
	Medians	Turn Lanes	Roundabouts	Traffic Signal Timing	Frontage Roads	Driveway Spacing
Improve motorist safety	✓	✓	✓			✓
Improve pedestrian and bicycle safety	✓		✓	✓		✓
Reduce conflict points	✓	✓	✓	✓	✓	✓
Decrease crash rates	✓	✓	✓			✓
Improve air quality			✓	✓		
Decrease congestion	✓	✓	✓	✓	✓	✓
Improve aesthetics	✓		✓			✓
Decrease travel times		✓	✓	✓		✓
Improve property access		✓			✓	✓
Preserve roadway capacity	✓	✓	✓	✓	✓	✓

Medians

There are two main types of medians: raised (non-traversable) medians, flush (painted) medians. Medians provide a physical or visual barrier, which separates opposing traffic flows and concentrates turning movements to specific sections of a roadway. Raised medians are particularly useful in access management because of the physical separation they provide. Raised medians also have ancillary benefits. For example, they can be used for landscaping, drainage and pedestrian refuge.

Turn Lanes

Left turn lanes remove left turning movements from the through travel lanes. This provides left-turning vehicles refuge, which helps preserve traffic flow on through lanes and provides storage space while waiting to make a safe turning movement. Dedicated left turn lanes are separated from through lanes by either a raised or painted median. Left turn lanes improve safety, increase visibility of oncoming traffic and expand roadway capacity.

Two-way left turn lanes (TWLTL) or center left turn lanes (CLTL) are painted medians that provide left turn refuge for both travel directions on two-way roadways. They are appropriate where moderate to high levels of development exist adjacent to roadways. However, they can be used in lesser developed commercial corridors with high left turn demand. TWLTLs also provide refuge for vehicles turning left onto a roadway where they can wait to safely merge into the main traffic lane.

Right turn lanes are sometimes deployed at relatively high traffic intersections to remove right turning movements from the through travel lanes. They are not frequently implemented at lower volume driveways and intersections, because right turning traffic does not need to come to a complete stop under normal circumstances. Also, right turning movements do not cross another vehicle’s travel path. However, they can serve an important role in access management by allowing space for right turning vehicles to decelerate to a safe speed prior to negotiating the turn. By removing that deceleration from the through travel lane, friction is minimized and potential conflict avoided.

APPENDIX 5: ACCESS MANAGEMENT INFORMATION

Roundabouts

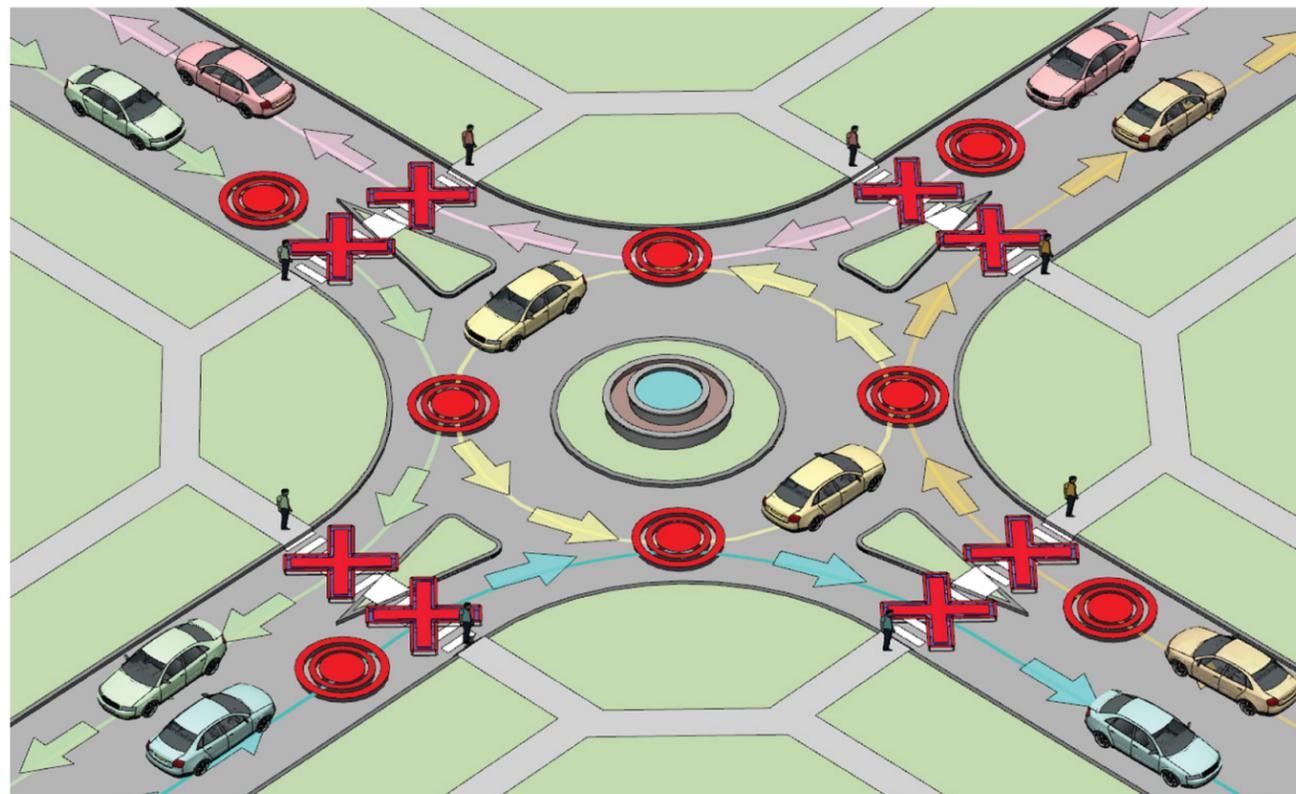
A roundabout is a type of intersection in which traffic from all directions merges into a circular facility and travels counter-clockwise until it can proceed in its desired direction of travel. In many situations, roundabouts have proven to be safer and more efficient at moving traffic than signalized intersections.

They can be safer than typical two lane intersections, because they eliminate conflict points within an intersection. The typical two lane intersection, as previously mentioned, has 32 conflict points. In a roundabout, there are no left turn movements. As shown in Exhibit A5.2, this results in only eight vehicular conflict points, none of which represent the potential for a head-on collision.

Exhibit A5.2: Roundabout Conflict Points

CONFLICTS

4-WAY ROUNDABOUT



8 VEHICLE TO VEHICLE CONFLICTS

8 VEHICLE TO PEDESTRIAN CONFLICTS

Traffic Signal Spacing/Timing

Traffic signals serve the important purpose of controlling the flow of traffic at relatively high volume intersections. But they should be used sparingly. Generally, signal deployment occurs only as warranted and justified by a through traffic engineering analysis. Such an analysis normally considers the broader traffic control needs of the entire corridor and local land use development plans to maximize positive results.

Proper spacing and timing of traffic signals helps control the ebb and flow of traffic to facilitate access management along a roadway. Too frequent spacing results in decreased operational efficiency by slowing traffic flow. Poorly synchronized timing cycles yield similar results.

Frontage Roads

Frontage roads are built parallel to the primary roadway and allow no direct access from properties onto the main through lanes. The standard frontage road configuration places it adjacent to the primary roadway and allows front access to properties. The frontage road typically connects to an intersecting roadway, where traffic is then allowed to access the main through lanes. Frontage roads allow businesses good visibility to the primary roadway while minimizing the number of direct access points.

Reverse frontage or backage roads are an alternative configuration to typical frontage roads. They are offset a greater distance from the primary roadway, typically located to the rear of frontage lots. This means that traffic accesses property from the rear of the lot. The main advantage to reverse frontage roads is that the greater offset distance separates the turning movements from the primary intersection, creating a safer and more efficient configuration. This also allows for commercial development on both sides of the frontage road.

Driveway Spacing

The amount of space between driveways can dramatically affect traffic flow. Condensed driveway spacing results in many conflict points along a corridor, while increased driveway spacing creates fewer conflict points. The greater the distance between access points, the smoother the traffic flow. There are several methods used to control driveway spacing. These include cross-lot access, shared access and shared parking.

Cross-lot access occurs when access is gained to a property through an adjacent property's driveway. Shared access occurs when two or more properties gain access through a driveway that is located on a common property line. Shared parking occurs when adjacent properties jointly develop, maintain and use the same parking area.

Such access strategies are commonly implemented by legal agreements entered into by adjacent property owners. The agreements are notarized and filed for record with the local county and are legally binding. Also, access agreements typically run with the land to ensure long-term mitigation of access issues. That is to say, they do not expire with a change in ownership, but remain intact as property changes hands. Therefore, access management is enhanced over an extended period of time. Many jurisdictions have standard access agreements to facilitate their use. Such agreements can be used as conditions of development approval.

