A Vision for Tomorrow

Lansing 2030

COMPREHENSIVE PLAN

CITY OF LANSING, KANSAS

LANSING 2030
A VISION FOR TOMORROW

COMPREHENSIVE PLAN

CITY OF LANSING, KANSAS | ADOPTED BY ORDINANCE: OCTOBER 16, 2014

ORDINANCE NO. 943

PREPARED BY:

CONFLUENCE

DESIGNWORKSHOP

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Urban planning, community development and government affairs

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SINCE 1898

ACKNOWLEDGEMENTS

2014 UPDATE

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01 INTRODUCTION

The Comprehensive Plan for the City of Lansing, Kansas, serves as the official policy to guide future growth of the city. The plan describes the visions, goals, and recommended activities related to land use, transportation, community facilities/services, and future growth areas. It is based on the desire of the community to achieve the overall vision of the city:

VISION

A VIBRANT, GROWING COMMUNITY IN A SAFE AND ATTRACTIVE ENVIRONMENT THAT CONSISTS OF QUALITY RESIDENTIAL NEIGHBORHOODS, A SUPERIOR EDUCATION SYSTEM, AND STRONG VIABLE BUSINESS INTERESTS; AND PROVIDES A VARIETY OF COMMUNITY SERVICES AND ACTIVITIES WHICH PROMOTE INDIVIDUAL GROWTH, FAMILY UNITY, AND SPIRIT OF COMMUNITY.

GENERAL INFORMATION

ORGANIZATION OF THE PLAN

The plan is organized into 7 sections including:

1. Introduction
2. Land Use
3. Transportation
4. Community Facilities
5. Future Growth
6. Funding, Statutes and Implementation
7. Appendix - 2014 Update

Sections 2-5 relate to the specific Comprehensive Plan elements and background data and include maps, visions, goals, and recommended activities which are the legal basis for decisions by the City of Lansing. Section 6 outlines Funding, Statutes and an Implementation Strategy to achieve the recommendations of the plan. The Comprehensive Plan was prepared in 2001 and updated in 2009 and again in 2014. The Appendix includes a 2014 Economic Analysis and Fiscal Impact Analysis.

LEGAL BASIS FOR PLANNING

The Comprehensive Plan was prepared pursuant to the authority granted by K.S.A. 12-741 to 12-768, Planning, Zoning and Subdivision Regulations in Cities and Counties. The City Planning Commission, established by ordinance, has exercised the authorization to prepare and maintain a Comprehensive Plan for the development of the city. The plan also addresses some issues that affect unincorporated areas lying outside of the city, but within Leavenworth County, which, in the opinion of the Planning Commission, forms the total planning area for the community of the City of Lansing. This area is identified as the urban growth management area on any of the maps within this plan. To complete the update of the Comprehensive Plan, the city contracted for professional planning services. The city also established citizen committees to provide input for development of the plan. As authorized by Kansas statutes, preparation of the plan included comprehensive surveys and studies of past and present conditions and trends relating to land use, population and building intensity, public facilities, transportation and transportation facilities, economic conditions, natural resources and other elements deemed necessary within the identified planning area.

The plan includes:

- Demographic and economic information about the community (starting on page 12 in Section 01 – INTRODUCTION);
- Existing residential dwelling unit counts, existing land uses, a list and definitions for the land use classifications, and a future land use map (starting on Page 18 in Section 02 – LAND USE, and the Future Land Use Map can be found on page 34);
- Base information on the existing roadway network, definitions and standards for different road classifications, and a transportation map of the existing and proposed major street network (starting on Page 41 in Section 03 – TRANSPORTATION);
- Information regarding existing community facilities including parks and recreation facilities, schools, fire and polices, public utilities, and a trails master plan (starting on Page 48 in Section 04 – COMMUNITY FACILITIES, and the Trails System Master Plan map can be found on page 60);
- The approach for managing growth, especially along the Main Street corridor, and a map outlining future annexation areas (starting on page 68 in Section 05 – FUTURE GROWTH, and the Annexation Map on page 81);
- Details regarding grant and funding programs, significant State of Kansas statues that impact Lansing, and the implementation strategy (starting on page 83 in Section 06 - FUNDING, STATUTES & IMPLEMENTATION, and the Comprehensive Plan Implementation Strategy, Table 22, can be found starting on page 91);
- A Fiscal Impact Analysis and a Market Analysis for the community (end of the Comprehensive Plan document beginning after page 96 in Section 07 – APPENDIX.

COMPREHENSIVE PLANNING PROCESS

The planning process involved two separate, but mutually supportive and concurrent programs. The technical program consisted of analyzing and revising data and background information regarding existing conditions within the community (including market data), preparing preliminary plans for future community growth and development and finally, refining this information into final plans and policies, including implementation strategies. These implementation strategies have been followed throughout the life of the plan. Citizen input was organized by a series of meetings designed to develop major themes and issues. Then citizens were asked for specific input to address those issues and update the plan. Three meetings were organized to include: an update on progress since the last Comprehensive Plan, identification of the desired future of the City of Lansing (visioning), preparation of goals and objectives, and prioritization of actions necessary to achieve the goals. The nine previous plan modules or topics were used to form the framework of the Comprehensive Plan and include:

- Land Use: Commercial/Business/Industrial
- Land Use: Residential
- Transportation
- Community Facilities & Services: Parks/Recreation/Swimming Pool
- Community Facilities & Services: Fire/Safety/Utilities
- Community & Facilities/Services: Community & Activity Centers/Library/Education
- Future Growth: Main Street
- Future Growth: Neighborhood Revitalization
- Future Growth: Annexation

The final report was prepared based both on technical analysis, as well as input from the committees. The final report was then reviewed by the Steering Committee and the Planning Commission.

PROGRESS SINCE LAST COMPREHENSIVE PLAN

Significant development has occurred since the Comprehensive Plan was prepared in 2001, updated in 2009 and now again in 2014. A brief summary of this is provided below.

RESIDENTIAL DEVELOPMENT

The city has seen tremendous residential growth since completion of the 2001 Comprehensive Plan. Foremost has been the completion of the Wyndham Hill Subdivision, of 125 homes, and the build-out of the Rock Creek West, Carriage Hills, the first several phases of the Rock Creek Ridge, Angel Falls Villas, Lansing Heights, located off of West Mary Street on Frances Lane is fully constructed with 130 units, and Covington Woods, a 48-unit apartment complex located adjacent to Lansing Heights.

Several subsequent housing developments have been platted since the completion of the Comprehensive Plan. At the far north end of Lansing, adjacent to and west of the Leavenworth Country Club, is the Fairway Estates Subdivision. This is an upscale development to be completed in phases, with an assortment of single family residences and zero lot lines residences in which the common areas are owned and maintained by a homeowners association. Phase One of the subdivision contains 36 lots, and Phase Two (which opened in 2000) consists of 44 lots, both now completed. There are two remaining phases of the 60+ acre development. This development ties into the older existing Country Club and Woodland Hills Subdivisions, and provides a means of egress from these subdivisions north to Eisenhower Road. The main entrance to the subdivision is from Eisenhower Road, via Pebble Beach Drive, which is a north-south collector street. This street provides access to the Woodland Hills Subdivision, also finalizing its development to the south of Fairway Estates. The Willows and the Maples at the Woodland Hills have been constructed. This subdivision was also constructed with an east-west collector street, Holiday Drive, which provides a through street to Desoto Road.

At the very south boundary of the city is the Southern Hills Subdivision, a 70 lot subdivision. This subdivision lies adjacent to Nine Mile Creek, and west of the Rock Creek West Subdivision. Cottonwood Drive, the main street through Southern Hills, provides an outlet for Rock Creek residents to Desoto Road to the west. A second phase of that development, Rock Creek Estates, has been completed. This is a 64 lot subdivision. Construction began in the fall of 2000. West of Rock Creek Estates is a subdivision called Rock Creek Ridge. Construction is still in progress on this subdivision, totaling 101 residential lots.

In the center of the city, east of Main Street, is the Hillbrook Subdivision (built out), fronting on East Mary. This 55 lot subdivision opened the summer of 2000 and is currently fully developed. This subdivision is constructed adjacent to Nine Mile Creek, and contains a permanent easement for the construction of a trail system adjacent to the creek.

An additional tract of land south of West Mary Street and east of Desoto Road has been rezoned for residential construction and was preliminary platted in early 2009. The current 80 acre tract lies south of and adjacent to another 60 acre undeveloped agricultural tract within the city. To the east of the tract is an additional 20 acres of undeveloped land that will have access from the proposed subdivision and Bittersweet Street extension.

COMMERCIAL DEVELOPMENT

Attracting commercial development has remained a major emphasis of the city, and three quality commercial subdivisions have been platted.

The largest development is Lansing Towne Center. This is a 32 acre retail development that has been platted and improvements constructed to establish a retail center, and reconstruct a downtown area that was lost to the jurisdiction in the late 1960s. The Towne Center has seen positive initial development, consisting of Country Club Bank, Exchange National Bank and Trust, a car wash, a Sonic drive-through restaurant, and a Scooters Coffee.

The second largest is Eisenhower Crossing, a Planned Unit Development that anticipates retail, residential and assisted living facilities. Medical and retail units have been constructed. Carriage Hills Plaza, a six lot, seven acre subdivision, is anchored by a Holiday Inn Express, and a large retail center. This development has direct access to Main Street, adjacent to the Pizza Hut, with a Dairy Queen across the street. A retail business exists on all but one of the lots. A second retail/office center is planned by the developer and scheduled for construction on one of the rear lots. The main structure of a smaller development, Lansing Depot Shops, has also been constructed, with direct access to Kansas Avenue. This development is intended as a mixed use type of development.

The third development is an eight lot, six acre commercial subdivision, located on the East side of Main Street, north of City Hall, with access from First Terrace, a reverse frontage road. Four lots of this development serve as the home for the Rock Creek Medical Center, a premier wellness, two-story 35,000 square foot Medical Complex and the expansion of the Twin Oaks campus to include independent, assisted, skilled, and rehab facilities. This site is adjacent to a separate medical facility that has also been constructed since the last update of the Comprehensive Plan. Other commercial establishments constructed include a Wood's Mini-Mart, a twenty unit assisted living facility, I-HOP, Garden Center, Shoebox, Aldi's, Tractor Supply, Leavenworth County Co-op, as well as numerous business expansions and changes in existing buildings. While there is substantial commercial business within the city, there are some vacant commercial buildings within some of the developments.

INDUSTRIAL DEVELOPMENT

The major area of the city being considered for industrial development is on Gilman Road, east of Main Street. This area previously contained a quarry operation, and is naturally screened from US73/K-7 by the embankment adjacent to Nine Mile Creek. A number of businesses exist in Lansing Business Center, including a 58 acre industrial park that was approved in 1997, and a wastewater interceptor to serve the area that has been constructed by the City. An additional 10 acre industrial tract, J. Larkin Industrial Park, was platted in 2000 and is currently built out. There is the potential for platting more than 200 acres of industrial development in this area as well as the potential for a regional airport facility in this area.

A recent study of potential airport sites in Leavenworth County ranked the site on Gilman Road east of K-7 as the preferred site for a new airport in the county, to serve smaller and mid sized aircraft. Given this finding, the development of a new airport in this part of the community remains a possibility and its eventual completion could stimulate additional industrial and commercial growth in the southeastern part of Lansing.

MAJOR STREET IMPROVEMENTS

The City has aggressively pursued economic development, geometric improvement, and surface transportation program grants for road improvements through the city. Since approval of the 1994 and 2001 Comprehensive Plans, the following are either completed or ongoing major street construction improvements:

- Rock Creek Crossover: A $100,000 plus project to provide a crossover on US73/K-7 to Rock Creek Subdivision, completed in 1997.
- Ida Street Traffic Signal: Installation of a traffic signal on US73/K-7 at Ida Street to serve the new Middle School on Ida Street, completed in November 1997, and the addition of a left-turn phasing at that intersection in 2000.
- Gilman Road: A $700,000 economic development project to reconstruct West Gilman Road as a collector street, completed in 1999.
- Main Street System Enhancement Project: Completed in 2007, provided a turning lane, 7 mile bridge, and sidewalk and trail. This $18.9 million project completed major improvements to the 2.5 miles of Main Street from Gilman Road north to Connie Street. These improvements include widening, intersection improvement, frontage roads, turning lanes, sidewalks, street lighting, and other improvements to enhance the safety and attractiveness of the city's Main Street; US73/K-7. KDOT accepted the project 5-1-2009.
- East Eisenhower Road provided a widened street surface, sidewalks, and geometric improvements. KDOT accepted the project 12-3-2007.
- Centre Drive is a half mile stretch of local street that was constructed to enable development of the Lansing Towne Center. PW Director accepted the project 5-20-2004.
- East Mary Bridge: The replacement of the East Mary Bridge in a joint project with KDOT, Leavenworth County, and the City, with the addition of a sidewalk on the south side of the bridge, completed in 2000.
- West Mary Project: This 3.8 million dollar project constructed a 1.2 mile collector street between US73/K-7 and Desoto Road, opening approximately 700 acres of additional development. KDOT accepted the project 7-16-2003.
- East Gilman Road: An economic development project to serve the industrial area south of the city, to construct one half mile of collector street, and a new bridge. This is a joint project with KDOT, Leavenworth County, and the City. This project was completed in 2001. KDOT accepted the project 10-21-2002.
- Fairlane Extension: This was an $800,000 economic development project that extended Fairlane Street, a collector street, to the east across Main Street. This street provides the signalized intersection access for residents east of Main Street, and provides the connecting east link for an east-west collector street to Desoto Road. This project was completed in 2001. KDOT accepted the project 5-19-2005.
- Main Street Safety Project: This is a $700,000 safety project that widened Main Street, and provided a raised median from Eisenhower Road south to Carol Street and add a center turning lane from Carol to Connie Street. This project was completed in 2001. KDOT accepted the project 5-3-2004.
- 147th Street Improvements (minor arterial)
  - 4-H Road to Cottonwood Street; completed in 2001.
  - Cottonwood Street to McIntyre Road; completed by Leavenworth County in 2004.
  - McIntyre Road to Dempsey Road; completed in May 2008.
- Design has been completed for Desoto Road from Ida Street to Eisenhower Road to include 5 lanes.
- Bittersweet Bridge
- Safe Route to Schools Project
- Gamble Design
- Trail projects

WASTEWATER UTILITY IMPROVEMENTS

The City has also expanded the wastewater collection system to accommodate anticipated growth of Lansing. Completed is the construction project for more than half-mile of an interceptor to serve the industrial area being developed off of Gilman Road and the 9-A interceptor from Main Street to Southern Hills. Under design for construction is the 9-D Interceptor, to be located in the southern annexed areas of the city in preparation for future growth in that area. Another sanitary sewer designed and under construction will extend from the 9-B interceptor through the new High School property to serve west Nine Mile Creek basin. This sewer will be completed in time to serve the high school when it opens.

In addition, the Wastewater Treatment Plant has been updated and expanded, with the treatment process nearly tripling the capacity of the plant to accommodate future development well into the 21st century. A new Wastewater Master Plan is under way to increase interceptor capacity and accommodate potential growth areas.

OTHER PUBLIC IMPROVEMENTS

Various other public improvements that have been made including:

- Sidewalks on both sides of Main Street (with the exception of the area near Ida Street) and on south side of Eisenhower Road.
- Dedication of the Activities Center with Library, and the remodeling of public offices on the north end of the building.
- Renovation of the depot and dedication as a museum.
- Park designation at Gilman Road and Main Street (Kelly Grove Park). This land was designated for use as a nature park. Primitive trails have been developed in the area.
- Construction of a new fire station on prison property.
- Construction of a new Lansing Middle School south of Ida Street and west of Main Street.
- Purchase and initial phase of construction on a 128 acre community park, called Kenneth W. Bernard Park, on Gilman Road.
- Five miles of public pedestrian trail.
- Creation of the Main Street Overlay District.
- Creation and implementation of the Master Park and Trails Plan. Construction of 10 miles of improved trails has been completed.
- Annexation of 153 Acres for a new Lansing High School; 73 million bond issue, currently under construction, design includes with Olympic swimming pool.
- Construction of new elementary school on West Mary.

LOCATION

As of 2013, Lansing has an estimated population of approximately 11,642 people. Lansing is located in Leavenworth County in the northeast corner of the state west the Missouri River. Leavenworth County is located generally northwest of Kansas City, and is one of fourteen counties within the Kansas City Metropolitan Statistical Area (MSA). Lansing is just north of Interstate 70 and Interstate 435 systems interchange and The Legends development. East Leavenworth County is an area with significant public land and employment. The City of Leavenworth, located adjacent to and north of Lansing. Directly adjacent and north of the City of Leavenworth is Fort Leavenworth, a federal military reserve. The City of Lansing is highlighted in Figure 1.1.

HISTORY

The community of Lansing was incorporated as an official City of Kansas in 1959, but early development of the community can be traced to the 1860's when the United States experienced significant westward expansion.

The development of Lansing was influenced primarily by establishment in 1827 of Fort Leavenworth and subsequent settlement of the City of Leavenworth to the north. The army post was originally established to protect travelers on the Santa Fe and Oregon Trails, and continued to play a key role in the United States westward expansion with the opening of the Kansas and Nebraska Territories.

In 1861, the state of Kansas selected the area for construction of a state penitentiary. A tract of land was selected five miles south of Leavenworth, near the community of Delaware, at the intersection of Old Military Road and Seven-Mile Creek. Old Military Road connected Fort Leavenworth to Westport in Kansas City, Missouri. Funds were appropriated in 1863 for the state prison, and the first buildings were completed in 1867.

Inmate labor was used to construct the prison facility which was occupied in 1868. The walls were constructed of stone seven feet thick and twenty feet high, and are still in place today. Inmate labor was also utilized to establish a coal mining operation which supplied coal to all correctional facilities in the state. The necessity to transport the coal spurred development of the railroad system and the area soon became a crossroads for the railroad industry.

A bustling community near the prison developed as a result of the building of the new Kansas State Prison and was referred to locally as the "Town of Progress". Population from the communities of Leavenworth, Kickapoo (north of Leavenworth), and Delaware City (now defunct), as well as from Missouri, were attracted to the area for employment and economic opportunities. Many businesses soon developed to support the railroad, prison facilities, and coal mining industry.

Lansing's founding father, William Lansing Taylor, was born on October 30, 1831, in New York. During his youth, he studied both law and medicine. He was involved in business in Missouri when the Civil War started. He joined the Seventh Missouri Infantry. Soon after, he was captured and taken prisoner. Taylor was later paroled after agreeing he would not take up arms against the South again. He broke this contract in 1862 by enlisting as a hospital steward in the 7th Regiment of the Kansas Volunteer Cavalry under the name of James William Lansing. After the Civil War, he continued using his new name. He earned a position at the new state penitentiary in Kansas as a hospital steward.

After resigning this position, he opened a general mercantile store in the area called "Town of Progress," which held the post office and an apothecary business. As a result of the long period he spent as a hospital steward and running the drug store, he became known as "Doc Lansing" - even though he was not a doctor nor was his last name really Lansing.

James William Lansing and his friend John C. Schmidt became co-owners of ninety acres of land that was platted into town lots in 1878. The two partners donated the streets for public use and named the area Town of Lansing. Both the area named Town of Lansing on the west side of the road and the Town of Progress on the east side became known as Lansing. Doc Lansing died in Lansing on March 20, 1886, and was buried at Mount Muncie Cemetery in Lansing.

FIGURE 1.1 - LOCATION MAP OF LANSING, KANSAS

Incorporation of Lansing did not happen for almost 100 years because it was denied twice by the Leavenworth County Commissioners. Many town hall meetings were held in the high school gym by Dr. Robert Moore in the 1940s but plans to pursue incorporation were not followed through. In 1950, when the Lansing High School basketball team played in the state tournament, there was a reception for the team at the grade school gym. It was packed and probably was the first time in the town's history that all of the citizens gathered together for a common goal. At this meeting, Dr. Moore said, "…from now on great things will be happening in Lansing." Following that meeting, many volunteers formed Lansing's first fire department. Then the newly formed Lions Club had many local "doers" to get things done to help the City. In late 1958, George Caraway and two others went to Topeka to find out what would be needed to incorporate.

Official incorporation of the City finally occurred in 1959. The Delaware Township Sewer District constituted the voting boundaries for the new City. The City started out with no money, no place to meet, and operated without a source of revenue for two years. The local Lions Club provided funds until the City started receiving tax revenues. The volunteers on the fire department, the Lions Club membership, and the first elected City Councilmen were pretty much the same group of people.

There was talk of the four lane road (now known as Main Street/K-7/US-73) being constructed through Lansing as far back as 1946 when it was mentioned in the 1946 High School Year Book prophecy. The third City Council in the early 1960s voted unanimously to provide Lansing's share of the cost of the four lane highway that was then being proposed by Kansas Department of Transportation. As a result of this new highway, Lansing lost its downtown business district and all the homes on the east side of the road. The State of Kansas bought a total of 17 businesses and homes.

In 1960, Lansing was made up of 1,261 individuals and for the next 40 years expanded its population by nearly 2,000 residents every 10 years. This gave rise to Lansing being called "The City with a Future" as a result of its rapid and constant growth. Today, Lansing continues to grow and is still a mostly single family residential community known for its good school district and a small town quality of life.

ENVIRONMENTAL FACTORS

CLIMATE

As a result of the close proximity to the Missouri River, the environmental features in the Lansing area have very distinct characteristics. This section describes climate, physiography (elevation and drainage basins), conservation areas (slopes, flood plain, and vegetation), and soils.

Data on climate were taken from the Leavenworth and Wyandotte Counties Soil Survey by the Soil Conservation Service. Generally, the climate in Leavenworth County is characterized by warm to hot summers, cold winters, moderate surface winds, maximum precipitation in the warm season, and frequent changes in the weather from day to day. The Gulf of Mexico is the principal source of moisture for precipitation in Leavenworth County. The average yearly precipitation is approximately thirty-five inches, of which approximately seventy percent falls during the growing season (April through September). Rainfall averages about four inches per month from May through September. Precipitation during this season generally occurs as showers and thundershowers at night or early in the morning. Heavy downpours occur at times and can cause severe erosion in cultivated fields. The probability of receiving significant moisture is greatest in late May, early June, and early August.

Winters in Leavenworth County are generally dry. Only about ten percent of the annual precipitation falls during December, January, and February. The average precipitation for each of these months is 1.25 inches. Frequent and significant changes occur in the weather from day to day. The annual range in temperature in Leavenworth County is fairly wide with intense heat possible in the summer and occasional arctic air surges in the winter. The seasonal changes are abrupt. Some occasional severe weather occurs in Leavenworth County, including heavy rain, hail storms, tornadoes, and drought. This severe weather sometimes causes extensive damage and typically occurs in the spring and summer seasons.

PHYSIOGRAPHY

Physiography refers to the character and shape of the surface of the land. The region surrounding Lansing is part of a glaciated region. The shape of the land is significantly influenced by the close proximity to the Missouri River valley.

Lansing is located at the confluence of the Seven Mile and Nine Mile Creek basins. These two creeks join just before entering the flood plain of the Missouri River. This geographic feature provides Lansing with the opportunity of servicing two large drainage basins with one sewage treatment plant. The location also emphasizes the importance of managing storm water runoff within the two basins.

Lansing is located approximately nine hundred feet above sea level. The Seven Mile Creek and Nine Mile Creek join at an elevation of approximately seven hundred and fifty feet above sea level. Only a small portion of the City of Lansing currently lies outside of one of these two basins.

The Seven Mile Creek basin covers the northern portion of the City of Lansing. The drainage basin extends from the Missouri River valley westward to approximately Tonganoxie Road. The Seven Mile Creek drainage basin is very linear and is generally characterized by severe slopes south of the creek and more gentle slopes north of the creek. More than half of the drainage basin is located outside of the current city limits and is currently not serviced by sewer lines.

One major ridge which runs generally east to west divides the Seven Mile Creek and Nine Mile Creek drainage basins. The ridge overlooks steep slopes to the north down to the Seven Mile Creek. South of the ridge is the Nine Mile Creek drainage basin. The topography south of this main ridge is generally characterized as gently sloping.

The Nine Mile Creek drainage basin is the larger of the two drainage basins covering the City of Lansing. One-fourth of this basin covers the southern half of the current city limits. Approximately three-fourths of the drainage basin is currently located outside of the city limits within Leavenworth County. A small portion of the drainage basin is located in Wyandotte County. Only the portion within the City of Lansing is currently serviced by sewer lines.

IMPLICATIONS FOR DEVELOPMENT

Lansing is beginning to experience some of the management issues associated with being located at the base of two drainage basins. New development includes more rooftops, parking lots, and paved streets and less open space. This causes increased amounts of storm water with increase rates of runoff. The increase in volume and frequency causes flooding problems in the older developed areas of Lansing and along major drainage ways. To complicate this, some homes in older developments are actually located in the heart of areas (100 year flood plain) that are most affected by the runoff. Additionally, although regulations exist requiring individual new developments to address water runoff, this is done on a micro-scale and the issues of the entire community can only be addressed on a macro-scale. Fortunately, since Lansing is not yet in a critical position, an opportunity exists to study and address the issue comprehensively and implement solutions in the most cost-effective manor. However, as state and federal regulations regarding managing storm water run-off and water quality continue to increase, the city may need to consider the formation of a storm water utility.

Consideration of the impact of new development on the existing sanitary sewer system is also important. It can be costly to upgrade and up-size existing sewer interceptors that are now over 30 years old to accommodate growth upstream and past the original city limits.

CONSERVATION AREAS

Three categories of environmentally sensitive areas are depicted on Map 1, Conservation Areas, on page 11. Environmentally sensitive areas include excessive slopes, 100 year flood plain, and existing heavy vegetation.

SLOPES

Slopes are considered excessive when they generally exceed twelve percent. The Lansing vicinity has two major areas with excessive slopes. They are the bluffs above the Missouri River and the area located to the south of Seven Mile Creek. Some of these slopes are within the City of Lansing. These areas are generally undeveloped, however some residential uses do exist. In general, these slopes could best be used for recreation, wildlife, and greenbelts.

FLOOD PLAIN

The one-hundred year flood plain, as determined by the Federal Emergency Management Agency (FEMA) is identified on the Conservation Areas Map. An extensive flood study of the Seven and Nine Mile Creek Watershed was conducted from 1997 through 2000. The results of that study were officially published in 2001, and provided a revised Flood Insurance Rate Map. The flood insurance rate maps were revised in 2004 and 2009. New maps are schedule to be published in 2015.

VEGETATION

Vegetation existing within the study area consists primarily of deciduous forest cover. Areas with dense vegetation, as identified on the Conservation Areas Map, typically occur on excessive slopes and in the one-hundred year flood plain.

IMPLICATIONS FOR DEVELOPMENT AREAS

Natural areas and areas of scenic beauty should be considered for public and private open space and development of the public trail system. Particularly, the city should work toward preservation of the Seven Mile Creek and Nine Mile Creek corridors. Development should be avoided in these areas, and adjacent development should be sensitive to the environmental conditions of the area. Incentives should be offered to developers to allow increased densities on high quality development areas in exchange for open space on conservation areas.

SOILS

Detailed information regarding soils is available in the Soil Survey of Leavenworth and Wyandotte Counties, Kansas from the USDA, Soil Conservation Service.

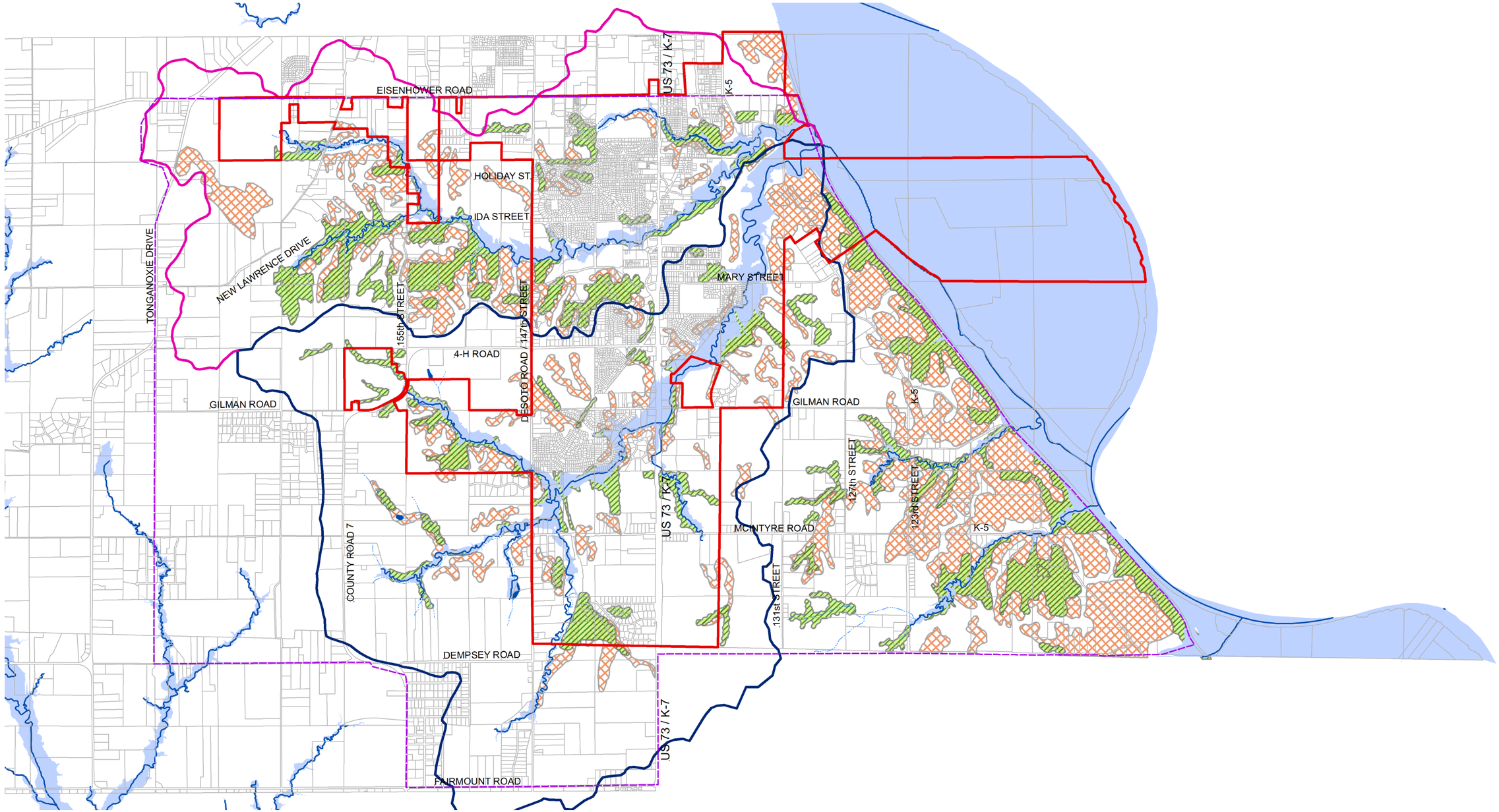
IMPLICATIONS FOR DEVELOPMENT

In many of the areas likely for future development, soils do not present a significant limitation on community development. One exception is the area located generally along the Seven Mile Creek and the steep slopes south of the creek. This area is within the range of near future development, therefore any development that occurs here will require more detailed studies.

Constraints to development do exist more in the soils located at the extremes of the study area, but still within the Seven or Nine Mile Creek Drainage basins. Most of the limitations exist with regards to septic field absorption. Because these areas drain into the heart of the Seven and Nine Mile Creek drainage basins, a concern exists for future pollution within the City of Lansing. The development of residential areas with septic fields in this area should not be allowed. Because of the potential severity of this problem, policies should be developed which regulate septic fields.

The prevalence of acidic soils in the Lansing area shorten the life of metal culverts and the prevalence of highly erodible soils require proactive regulation of erosion and sedimentation from construction sites.

MAP 1 | CONSERVATION AREAS MAP



LEGEND

- URBAN GROWTH MANAGEMENT AREA
- CITY LIMITS
- COUNTY PARCELS
- 7 MILE CREEK DRAINAGE BASIN
- 9 MILE CREEK DRAINAGE BASIN
- STREAMS
- WATER BODIES
- FLOOD PLAIN
- VEGETATION
- EXCESSIVE SLOPES

SOCIO-ECONOMIC FACTORS

POPULATION

The estimated 2013 population of the City of Lansing according to the U.S. Census Bureau is 11,642. During the ten-year period of 2000 through 2010, there was an increase of 22.5%, or an average 2.25% per year. These calculations include the prison population, which is estimated at approximately 2,400, therefore the remainder of the population in Lansing is estimated to be approximately 9,200. Some public services, such as utilities and fire, must consider the City of Lansing population inclusive of the inmate population. Other public services, such as park and school facilities, generally consider the city population exclusive of inmate population. This information and a comparison with other cities within Leavenworth County is displayed in Table 1 and Table 2, below.

	1990[1]	2000[1]	2010[1]
CITY OF BASEHOR	1,677	2,238	4,613
CITY OF EASTON	405	362	253
CITY OF LANSING[2]	7,120	9,199	11,265
CITY OF LEAVENWORTH[3]	38,495	35,420	35,251
CITY OF LINWOOD	409	374	375
CITY OF TONGANOXIE	2,347	2,728	4,996
LEAVENWORTH COUNTY	64,371	68,691	76,227

TABLE 1 - POPULATION

	2000-2010[1]
CITY OF BASEHOR	106.1%
CITY OF EASTON	-30.1%
CITY OF LANSING	22.5%
CITY OF LEAVENWORTH	-0.5%
CITY OF LINWOOD	0.3%
CITY OF TONGANOXIE	83.1%
LEAVENWORTH COUNTY	11.0%

TABLE 2 - PERCENT CHANGE IN POPULATION

1 U.S. Census Bureau Official Census.
2 Includes Prisoners at the Kansas State Penitentiary.
3 Includes Fort Leavenworth, Prisoners at the Federal Penitentiary, Military Disciplinary Barracks, CCA.

POPULATION BY AGE

2010 US Census Bureau data indicates that Lansing has a slightly higher percentage of work age population (18-64) than compared with the State of Kansas as a whole. This may be somewhat affected by the relatively large local prison population of 2,400.[4] The percentage of adults 65 years of age and older is somewhat lower compared with the State. The population break down by age group for Lansing and the State of Kansas is provided in Table 3: 2010 Population by Age, below. A comparison of the population break down by age group for the State of Kansas and the United States is provided in Table 4: 2010 Population by Age – State & Nation. [4]

	LANSING, KANSAS		STATE OF KANSAS	
	POPULATION	%	POPULATION	%
UNDER 5 YEARS	608	5.4	205,492	7.2
5 TO 9 YEARS	712	6.3	202,447	7.1
10 TO 14 YEARS	757	6.7	198,884	7.0
15 TO 19 YEARS	724	6.4	203,821	7.1
20 TO 24 YEARS	702	6.2	204,454	7.2
25 TO 29 YEARS	782	6.9	197,783	6.9
30 TO 34 YEARS	856	7.6	179,937	6.3
35 TO 39 YEARS	923	8.2	172,388	6.0
40 TO 44 YEARS	961	8.5	174,285	6.1
45 TO 49 YEARS	1,061	9.4	201,830	7.1
50 TO 54 YEARS	917	8.1	204,434	7.2
55 TO 59 YEARS	776	6.9	182,512	6.4
60 TO 64 YEARS	549	4.9	148,735	5.2
65 TO 69 YEARS	340	3.0	107,755	3.8
70 TO 74 YEARS	199	1.8	82,634	2.9
75 TO 79 YEARS	138	1.2	69,466	2.4
80 TO 84 YEARS	131	1.2	56,943	2.0
85 YEARS AND MORE	129	1.1	59,318	2.1
MEDIAN AGE	37.6	-	36	-

TABLE 3 - 2010 POPULATION BY AGE

4 2010 US Census Bureau Data

	STATE OF KANSAS[5]		UNITED STATES[5]	
	POPULATION	%	POPULATION	%
UNDER 5 YEARS	205,492	7.2	20,201,362	6.5
5 TO 9 YEARS	202,447	7.1	20,348,657	6.6
10 TO 14 YEARS	198,884	7.0	20,677,194	6.7
15 TO 19 YEARS	203,821	7.1	22,040,343	7.1
20 TO 24 YEARS	204,454	7.2	21,585,999	7.0
25 TO 29 YEARS	197,783	6.9	21,101,849	6.8
30 TO 34 YEARS	179,937	6.3	19,962,099	6.5
35 TO 39 YEARS	172,388	6.0	20,179,642	6.5
40 TO 44 YEARS	174,285	6.1	20,890,964	6.8
45 TO 49 YEARS	201,830	7.1	22,708,591	7.4
50 TO 54 YEARS	204,434	7.2	22,298,125	7.2
55 TO 59 YEARS	182,512	6.4	19,664,805	6.4
60 TO 64 YEARS	148,735	5.2	16,817,924	5.4
65 TO 69 YEARS	107,755	3.8	12,435,263	4.0
70 TO 74 YEARS	82,634	2.9	9,278,166	3.0
75 TO 79 YEARS	69,466	2.4	7,317,795	2.4
80 TO 84 YEARS	56,943	2.0	5,743,327	1.9
85 YEARS AND MORE	59,318	2.1	5,493,433	1.8
MEDIAN AGE	36	-	37.2	-

TABLE 4 - 2010 POPULATION BY AGE (STATE & NATION)

POPULATION PROJECTIONS

The population of Lansing, including inmates at the state prison, was 9,199 in 2000 and 11,316 in 2010. Using population forecasts prepared by the Mid-America Regional Council for Leavenworth County, population forecasts have been prepared for the City of Lansing. The MARC forecast for the year 2020 anticipates total population growth for the county of 7,649 residents for the ten year period between 2010 and 2020. From this population growth projection for the county, the plan assumes that Lansing would capture 33.5 percent of the overall county population growth for the decade, resulting in an increase in the City's population of 2,562 from 2010 to 2020. The assumption that the City of Lansing would capture at least one third of the county's overall growth is based on the fact that the City of Lansing captured 19 percent of the county's growth during the 1980s, 48 percent in the 1990s, and 34 percent during the 2000s. Overall, the population of Lansing is anticipated to reach 13,878 by 2020 and 16,395 by 2030, using this methodology. The information is presented in Table 5 on the following page.

5 2010 US Census Bureau Data

LEAVENWORTH COUNTY[6] - CITY OF LANSING[7]				
	LEAVENWORTH COUNTY POPULATION	CHANGE IN POPULATION	LANSING - ASSUMED CAPTURE OF COUNTY GROWTH	FORECAST POPULATION
2000	68,691	-	-	9,199
2010	77,384	7,536	-	11,265
2020 (PROJECTED)	83,883	7,656	33.5%	13,830
2030 (PROJECTED)	91,539	7,656	33.5%	16,395

TABLE 5 - CITY OF LANSING PROJECTED POPULATION

These calculations are based on the overall population in Lansing including the inmate population. Since the inmate population is currently at maximum capacity of 2,409, the forecast population for the City of Lansing, exclusive of inmate population, is calculated based on the assumption that the inmate population will remain constant at maximum capacity of 2,409. Based upon the assumption that the state prison will remain at full capacity, the 2010 population of Lansing, exclusive of the inmate population, was estimated to be 8,856 residents. The city's population exclusive of the state prison population is projected to reach 11,421 by 2020 and 13,986 by 2030.

	LANSING WITH PRISON	INMATE POPULATION	LANSING WITHOUT PRISON
2000	9,199	2,409	6,790
2010	11,265	2,409	8,856
2020	13,830	2,409	11,421
2030	16,395	2,409	13,986

TABLE 6 - LANSING PROJECTED POPULATION WITHOUT PRISON

ECONOMIC ANALYSIS

INCOME

Current estimates (2012) regarding per capita personal income are available for Leavenworth County, the Kansas City Metropolitan Statistical Area, and the State of Kansas. Leavenworth County is above the State of Kansas but below the Kansas City MSA in terms of per capita personal income and is increasing at a faster rate than both areas. See Table 7: Per Capita Income[8] below.

	2000	2012	CHANGE
LEAVENWORTH COUNTY	$20,292	$25,813	27.2%
KANSAS CITY MSA	$23,102	$27,908	20.8%
STATE OF KANSAS	$20,506	$25,045	22.1%

TABLE 7 - PER CAPITA INCOME [9]

6 Mid-America Regional Council Population Forecasts.

7 2000 Population based on U.S. Bureau of the Census, 2010 and 2020 Forecast Population based on change in Leavenworth County population as forecast by Mid-America Regional Council.

8 U.S. Bureau of Economic Analysis.

9 U.S. Bureau of the Census.

The household income in Lansing is higher than many of the surrounding communities and significantly higher than the City of Leavenworth, as displayed in Table 8, below.

	1990	2000	2012
CITY OF LANSING	$37,724	$61,193	$70,520
CITY OF LEAVENWORTH	$29,629	$41,215	$46,547

TABLE 8 - MEDIAN HOUSEHOLD INCOME [10]

Another measure of the economic health of an area relates to the reported incomes by employment sector. The average income (of part-time and full-time employees) in most employment sectors is lower in Leavenworth County than it is statewide. However, due to the significance of federally-based employment at Fort Leavenworth, the VA Hospital, and the federal prison, and the presence of a significant number of management positions at the federal level within these institutions, the average income for government employees in Leavenworth County is significantly higher than that for the State of Kansas overall. The data outlined encompasses all of Leavenworth County and not just the City of Lansing. However, a significant portion of the total employment in Lansing is in the government sector. The average incomes in the manufacturing and transportation sectors in Leavenworth County are below the averages for the state, and as a result the area may be more competitive in attracting new companies.

	LEAVENWORTH COUNTY	STATE OF KANSAS
AGRICULTURAL SERVICES	N/A	$36,716
MINING	N/A	$56,734
CONSTRUCTION	$40,898	$47,281
MANUFACTURING	$46,953	$52,141
TRANSPORTATION / PUBLIC UTILITIES	$25,468	$41,105
WHOLESALE TRADE	N/A	$61,834
PROFESSIONAL AND BUSINESS SERVICES	$53,829	$61,057
GOVERNMENT	$53,391	$38,036

TABLE 9 - AVERAGE INCOME BY EMPLOYMENT SECTOR [11,12]

10 U.S. Bureau of the Census.
11 U.S. Bureau of the Census.
12 Bureau of Labor Statistics, 2012

PROPERTY VALUES AND TAXES

Historically, Lansing has had very high property values and achievable rentals. In a comparison of owner-occupied median value and renter-occupied median rent for the City of Lansing, Leavenworth County, Wyandotte County, Johnson County, and the State of Kansas in 1990, Lansing's median rent was the highest of any of the areas being compared and Lansing's median home value was exceeded only by Johnson County. Current rental rates for Lansing continue to be high with average rent at $491 for an apartment and $1,070 for a house.[13] The average cost of a residential lot in Lansing is $15,000-25,000. These figures indicate that Lansing should continue to be attractive to developers of both apartment and single family construction.

Additionally, Tax Levy Rates in Lansing continue to be comparable to other communities in Leavenworth County and below the rates of other Kansas City area communities. This will continue to enhance residential growth in Lansing. Table 10: Lansing 2014 Property Tax Rates[14] is displayed below.

CITY	40.927
COUNTY	36.570
SCHOOL	61.871
STATE	1.5
FIRE DISTRICT 1	6.291
TOTAL PROPERTY TAX MILL LEVY	147.159

TABLE 10 - LANSING 2014 PROPERTY TAX RATES

13 Leavenworth Area Development, 2000.
14 City of Lansing, Kansas

02
LAND USE

This section of the Comprehensive Plan sets forth a specific map and vision statement, goals and recommendations, to guide future land use within the City of Lansing and the surrounding community. Map 5, Future Land Use Map, page 34; the Commercial / Business / Industrial Land Use vision, goals and recommendations, page 37; and the Residential Land Use vision, goals and recommendations, page 39, are the legal basis for decisions regarding land development. Once approved by the City Council, the map, vision, goals, and recommendations, can be implemented through the various codes, ordinances, and regulations of the City of Lansing. Specific information related to Transportation, Community Facilities/Services, and Future Growth are provided in subsequent sections of the Comprehensive Plan.

EXISTING LAND USE

Perhaps the most significant factor affecting future development is the existing pattern of land use in a community. Existing users and owners of property have established a land use pattern for which future uses of vacant land must be compatible. During this planning process, the existing land use survey within the city was updated. Map 2, Existing Land Use, is displayed on page 21. Map 3, Existing Zoning is displayed on page 22.

RESIDENTIAL LAND USE

As shown in Table 11, the predominant residential land use is single-family residential. In 1999, single-family residential (including duplex units) accounted for 2,103 of the residential housing units in Lansing (approximately 85% of all housing units). Since 1999, there have been an additional 835 housing units added (based on permits issued), all but 181 of which have been single-family residential or duplex units. As of January 1, 2014, the total number of single-family residential housing units (including duplex units) was 2,757, and the percent of single family residential and duplex units as compared to all housing units has declined slightly to approximately 83%. Mobile home permits are no longer tracked by the City but based on a comparison of the US Census data from 2000 to 2012, which indicate an approximate 30% decline in the total number of mobile homes over that 12 year time period, it can be assumed the total number of mobile homes within the City has declined, but specific numbers based on permit activity are not available.

	PRE 2000	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	TOTAL
SINGLE FAMILY	2,055	57	44	87	78	56	102	41	25	24	25	11	19	16	19	**2,659**
DUPLEX	48	0	0	0	0	22	4	18	6	0	0	0	0	0	0	**98**
MULTI-FAMILY	113	0	3	30	0	0	0	0	0	0	0	0	48	0	0	**294**
MOBILE HOME	262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**262**
TOTALS	**2,478**	**57**	**47**	**117**	**78**	**78**	**106**	**59**	**31**	**24**	**25**	**11**	**67**	**16**	**19**	**3,313**

TABLE 11 - CITY OF LANSING HOUSING UNITS

UNDEVELOPED RESIDENTIAL LAND

Within the city, some parcels of undeveloped residential land include Conservation Areas. These sites have many constraints that make development less economically feasible for an investor. The good news for the city is that some of the areas that ideally should be conserved for the benefit of the community have not been developed, thereby allowing for future conservation of these areas. Map 4, Undeveloped Residential Land, displays the location of the remaining undeveloped parcels within the city and their relationship with conservation areas (100-year flood plain, excessive slopes, and wooded areas) and proposed trails. Since the remaining undeveloped sites have many development constraints, the City of Lansing should assist existing owners and developers with developing plans that allow greater densities on the buildable portion of the site in exchange for open space conservation areas. This technique is called 'cluster housing' which means to group single family detached dwellings or townhomes together on the more buildable area of a property and maintain the remaining, less buildable area as common open space or as a conservation area. The underlying zoning requirements regarding dwelling type (single family detached dwellings or townhomes) and maximum net density (dwelling units allowed per acre) are typically followed. However, through the establishment of a Planned Unit Development (PUD), the minimum

LOCATION	TOTAL ACREAGE	CONSERVATION ACREAGE	NET DEVELOPMENT ACREAGE	STREET ACREAGE[16]	NET ACREAGE
EAST OF MAIN ST.	32.74	20.99	11.75	2.94	8.81
WOODLANDS EXT.	12.81	2.85	9.96	2.49	7.47
NORTH OF W. MARY	22.77	12.10	10.67	2.67	8.00
SOUTH OF W. MARY	33.80	15.30	18.50	4.63	13.87
SOUTH OF 4-H ROAD	79.35	21.34	58.01	14.50	43.51

TABLE 12 - UNDEVELOPED RESIDENTIAL LAND

15 Contiguous areas of undeveloped land with less than 5 acres has been excluded.

16 Twenty-five percent of the net acreage is assumed to be required for street rights-of-way.

lot sizes and building setbacks are typically reduced to accomplish this clustering. Table 12, shows the total amount of undeveloped residential land remaining within the City of Lansing.[15]

AGE OF HOUSING

When identifying areas within the city that are good candidates for neighborhood revitalization, the condition of the housing and age of the structure are particularly important data to collect. In the City of Lansing, there are approximately 500 units that are over 50 years old. Housing units that are over 50 years old can be considered historic depending upon the cultural and/or architectural value of the structure. However, more important to neighborhood revitalization is determining where the concentration of aged housing exists. This typically correlates with a concentration of deficient housing. Table 13 displays data on the age of housing.

AGING POPULATION AND HOUSING

Given the projected overall aging of the population in Lansing over the next ten to twenty years, the following residential land use types are likely to increase in demand throughout the community:

- Patio or townhome units: These smaller, single level homes, typically developed in an organized community, would present lower maintenance burdens for aging citizens. The smaller size of these residential units, compared to traditional single family detached homes, would also better fit the needs of senior citizens, who often live by themselves or with one other person.
- Apartment complexes: With an aging population, the community will likely have an increased demand for apartment units geared to senior citizens. These complexes may allow seniors to live independently, or may provide a variety of services or programs to senior residents.
- Institutional senior housing facilities: As the population ages, the community will likely experience increased demand for more formal senior, institutional space (including nursing homes or assisted living care facilities) that provide medical services or day to day care.

BUSINESS LAND USE

The existing businesses in the City of Lansing are documented in Table 14, below. Market analysis conducted several years ago indicated that Lansing was losing retail dollars to surrounding areas. This meant that Lansing residents had to go outside of the city to find retail services to meet their needs. Although some new businesses have been established in Lansing, the retail market does not appear to be capitalizing on the increases in the population. As the city proceeds with redevelopment and revitalization efforts along Main Street, an economic development analysis should be conducted to determine impediments to new retail development in Lansing. Programs can then be developed that eliminate the impediments to development, thereby opening the market to new retail.

UNDEVELOPED COMMERCIAL LAND

Although several small tracts of land exist along Main Street, only one tract of land remains within the City of Lansing that is large and suitable for commercial development. This tract of land is located west of Main Street, south of West Mary Street to 4-H Road. Recently, development has occurred on the east side of Main Street, south of East Mary Street to 4-H Road (including City Hall). This development will complement a business development on the west side and together the areas create an overall Towne Center.

2010 TO 2013	66
1990 TO 2009	633
1980 TO 1989	688
1970 TO 1979	686
1960 TO 1969	299
1950 TO 1959	114
1940 TO 1949	109
1939 OR EARLIER	116

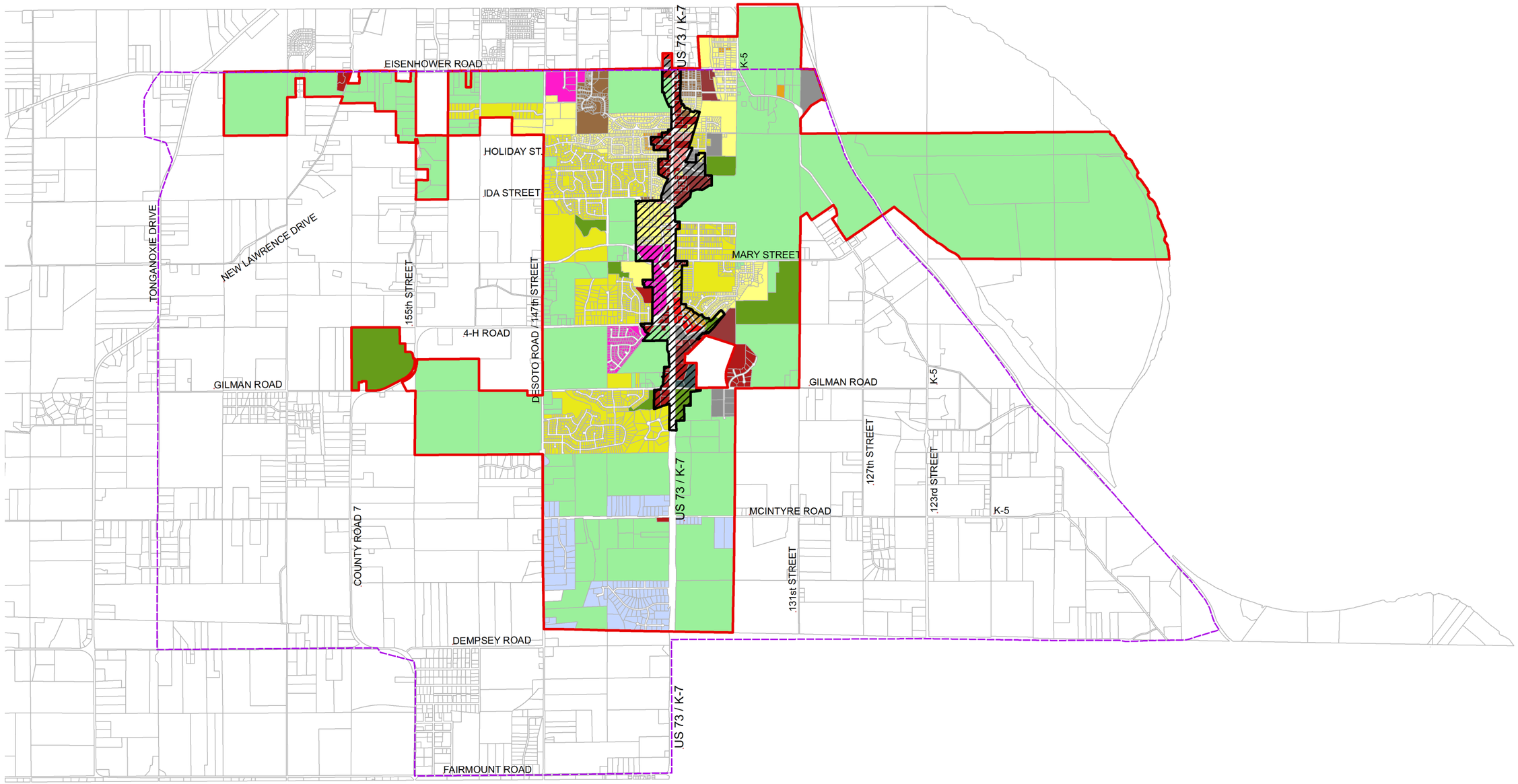
TABLE 13 - HOUSING UNITS BY YEAR BUILT

ESTABLISHMENT TYPE	QUANTITY
RETAIL	31
RESTAURANT	13
HOTEL	3
WHOLESALE	3
SERVICES	29
CHURCHES	7
OTHER BUSINESSES[17]	24

TABLE 14 - EXISTING NONRESIDENTIAL ESTABLISHMENTS

17 "Other Businesses" are businesses not included in above establishment types, such as contractors, read-mix plants, self storage companies, etc.

MAP 2 | EXISTING LAND USE MAP



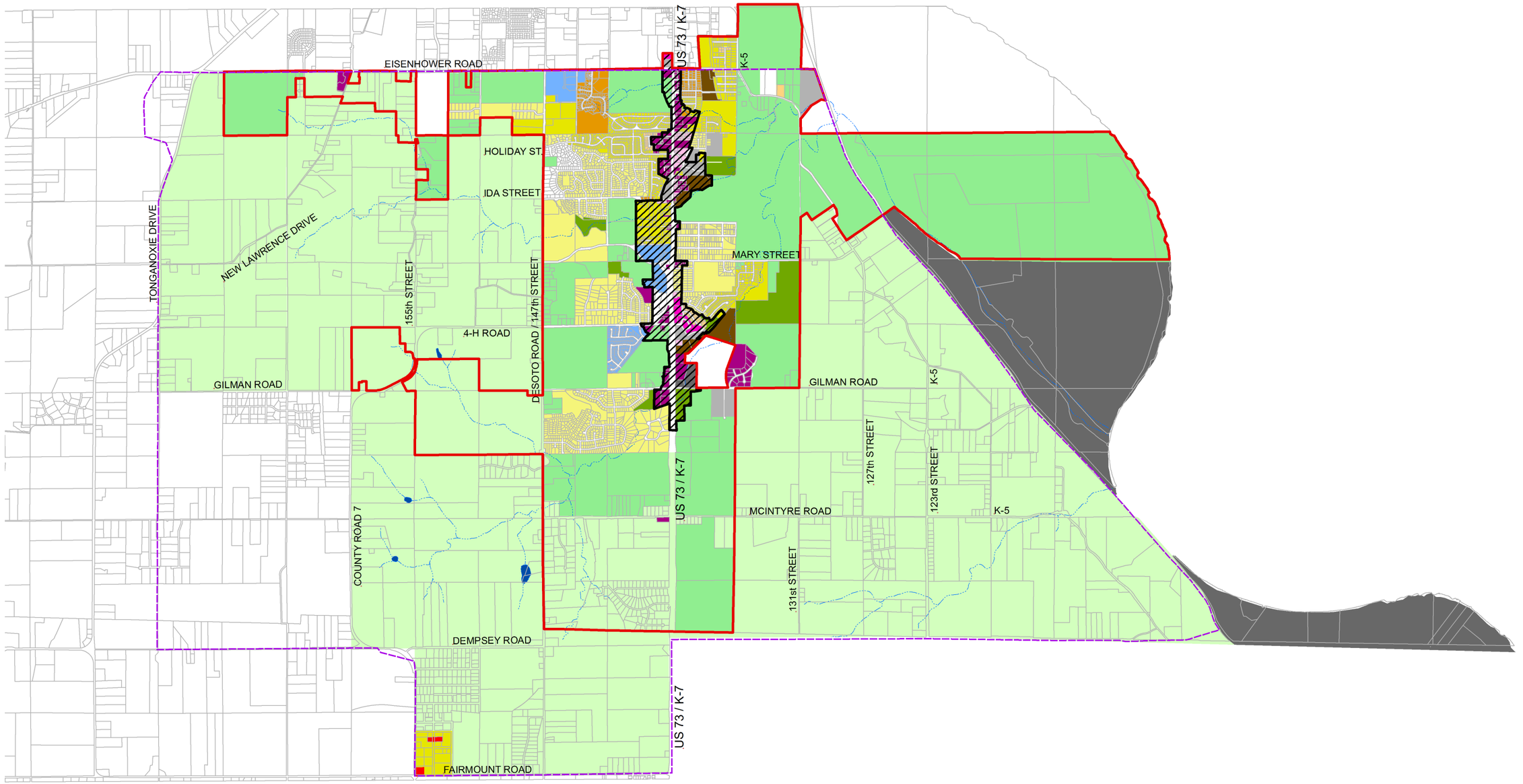
LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *EXISTING MAIN STREET OVERLAY DISTRICT (MSOD)*

EXISTING LAND USE

- *A-1 AGRICULTURE*
- *B-1 NEIGHBORHOOD BUSINESS*
- *B-2 GENERAL BUSINESS*
- *B-3 COMMERCIAL BUSINESS*
- *I-1 LIGHT INDUSTRIAL*
- *I-2 HEAVY INDUSTRIAL*
- *PUD*
- *R-1 SUBURBAN RESIDENTIAL*
- *R-2 SINGLE FAMILY RESIDENTIAL*
- *R-3 DUPLEX RESIDENTIAL*
- *R-4 MULTIFAMILY RESIDENTIAL*
- *R-5 MOBILE HOME PARK*
- *RR-2.5 RURAL HOME RESIDENTIAL (COUNTY)*
- *CITY PARK LAND*

MAP 3 | EXISTING ZONING MAP



LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *EXISTING MAIN STREET OVERLAY DISTRICT (MSOD)*
- *STREAMS*
- *WATER BODIES*

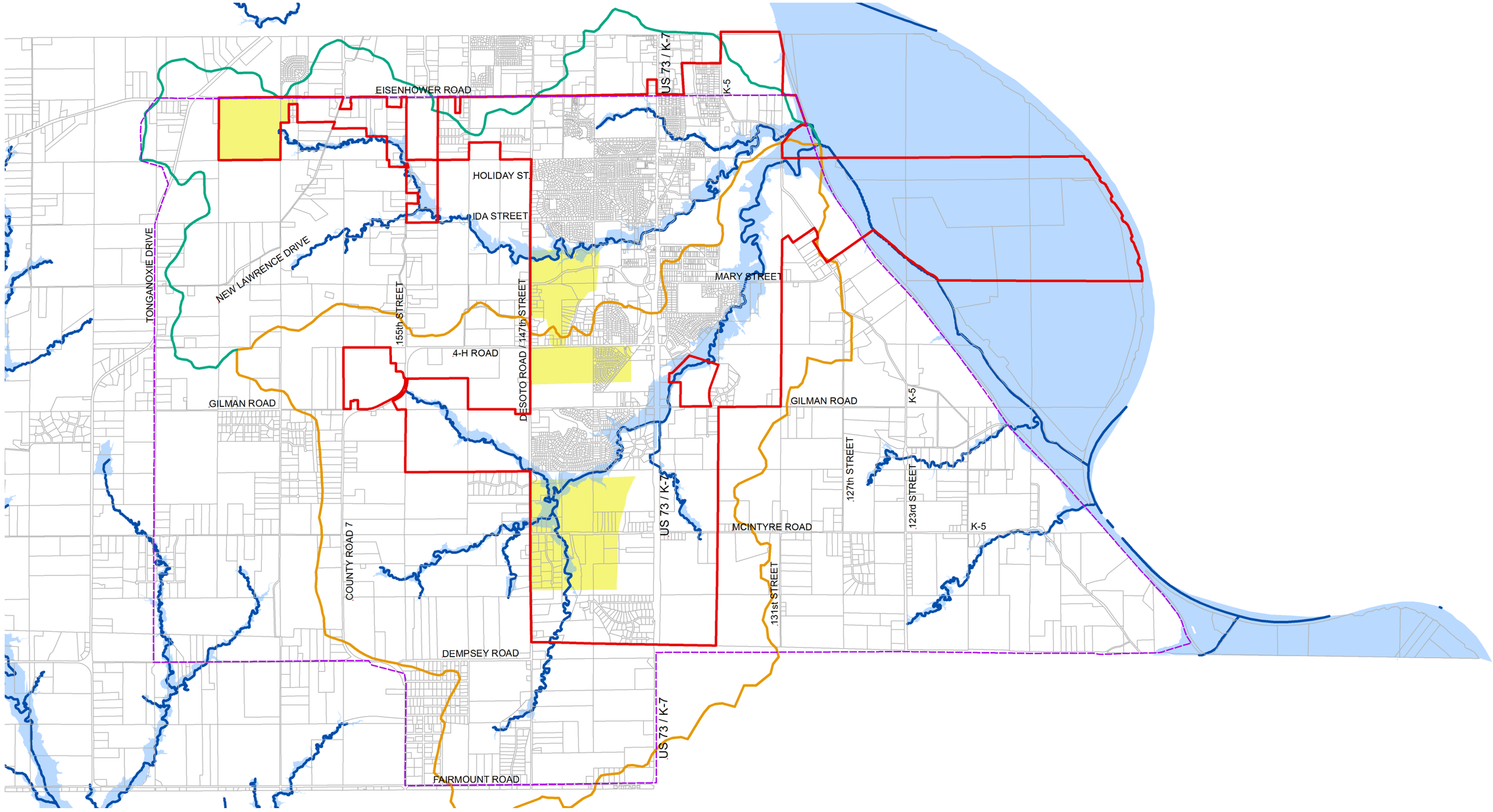
LANSING ZONING

- *A-1 AGRICULTURE*
- *B-1 NEIGHBORHOOD BUSINESS*
- *B-2 GENERAL BUSINESS*
- *B-3 COMMERCIAL BUSINESS*
- *CITY PARK LAND*
- *I-1 LIGHT INDUSTRIAL*
- *I-2 HEAVY INDUSTRIAL*
- *PUD - PLANNING UNIT DEVELOPMENT*
- *R-1 SUBURBAN RESIDENTIAL*
- *R-2 SINGLE FAMILY RESIDENTIAL*
- *R-3 DUPLEX RESIDENTIAL*
- *R-4 MULTIFAMILY RESIDENTIAL*
- *R-5 MOBILE HOME PARK*

COUNTY ZONING

- *B-3 GENERAL COMMERCIAL*
- *I-3 HEAVY INDUSTRIAL*
- *R-2 RESIDENTIAL*
- *RR-2.4 RURAL RESIDENTIAL*

MAP 4 | UNDEVELOPED RESIDENTIAL LAND MAP



LEGEND

- URBAN GROWTH MANAGEMENT AREA
- CITY LIMITS
- COUNTY PARCEL
- 7 MILE CREEK DRAINAGE BASIN
- 9 MILE CREEK DRAINAGE BASIN
- UNDEVELOPED RESIDENTIAL LAND
- STREAMS
- FLOODPLAIN

CLASSIFICATIONS

Land use classifications provide a means for describing the preferred use of land within the Lansing community. Classifications are designated in this plan rather than specific zoning districts. When development, redevelopment, or revitalization occurs, then zoning changes can be made to reflect the intent of the Future Land Use Plan. Areas that are currently zoned inconsistent with the existing land use designation should be rezoned (such as single family residential areas that are zoned multi-family). It was also suggested that the existing light industrial zoning district be modified to include business parks to accommodate the desires for integrated, high quality, industrial developments. These uses can be accommodated by use of the Planned Unit Development District. Table 15, Land Use Categories, defines fourteen proposed Land Use Categories and maps them to existing zoning districts. The Future Land Use Map documented on page 34 reflects the preferred use of available land using the general Land Use Categories.

Certain Land Use Categories do not have corresponding zoning districts or the referenced zoning districts have densities or standards that do not match the definitions proposed by the Land Use Category. As a next step to implement the goals and policies of this Comprehensive Plan, new zoning districts should be developed for Rural and Estate Residential, Office, Mixed Use, and Civic/Parks land uses categories and the densities and standards for the A-1, R-3, and R-4 zoning districts should be updated.

	MIN. LOT SIZE (1 ACRE - 43,560 SF)*	MAX. DENSITY*	LAND USE	RELATED ZONING
RURAL RESIDENTIAL	20 ACRES	<0.05 UNITS/ACRE	SINGE FAMILY	NONE
SINGE FAMILY ESTATE RESIDENTIAL	32,500 SF - 1 ACRE	0.2 - 1+ UNITS/ACRE	SINGLE FAMILY	NONE
SINGE FAMILY LOW DENSITY RESIDENTIAL	8,700 SF - 32,500 SF	1.34 - 5.0 UNITS/ACRE	SINGLE FAMILY	R-1 AND R-2
MEDIUM DENSITY RESIDENTIAL	6,000 SF	5.0 - 12.0 UNITS/ACRE	HORIZONTALLY ATTACHED MULTI-FAMILY, INCLUDING SENIOR HOUSING	R-3 AND R-4
HIGH DENSITY RESIDENTIAL	6,000 SF	5.0 - 16.0 UNITS/ACRE	HORIZONTALLY OR VERTICALLY ATTACHED MULTI-FAMILY, MOBILE HOME PARKS, AND SENIOR HOUSING	R-4, R-5, R-6
MIXED USE	N/A	N/A	RESIDENTIAL / BUSINESS	PUD
OFFICE	N/A	N/A	OFFICE	NONE
COMMERCIAL	N/A	N/A	RETAIL AND OFFICE	B-1; B-2; B-3
BUSINESS PARK / LIGHT INDUSTRIAL	N/A	N/A	INDUSTRIAL; REPAIR; WHOLESALING	I-1
AIRPORT / HEAVY INDUSTRIAL	10 ACRES	N/A	INDUSTRIAL; STORAGE; FABRICATION	I-2
FLOODPLAIN	N/A	N/A	100-YEAR FLOOD	N/A
CIVIC	N/A	N/A	GOVERNMENT; GOLF; CHURCH; CEMETERY	NONE
PARKS	N/A	N/A	RECREATION; OPEN SPACE	NONE
OPEN SPACE / AGRICULTURE	N/A	N/A	OPEN SPACE, AGRICULTURE, GREENBELTS, FLOODPLAINS	A-1

TABLE 15 - LAND USE CATEGORIES

*BASED ON THE TOTAL GROSS ACREAGE OF THE PROPERTY NOT INCLUDING PUBLIC STREET RIGHT-OF-WAY

Senior housing, defined as a multi-family attached housing development that is geared towards or age restricted to seniors, is typically considered an appropriate use within the Medium and High Density Residential land use designations. The dwelling units can either be horizontally or vertically attached such as patios, townhomes, or apartments (as referenced on page 20 under Aging Population and Housing). This definition does not include institutional senior housing facilities, i.e. congregate or skilled care facilities, commonly referred to as nursing homes. Senior housing as defined herein is generally allowed within the existing R-3 and R-4 zoning districts; however, as the zoning code is updated, special consideration should be made to ensure that the design concerns for senior housing are specifically addressed so that senior housing can be readily accommodated within the City.

LAND USE CATEGORY DEFINITIONS

RURAL RESIDENTIAL

Detached single family dwellings on individual lots with public or private street frontage and driveway access. Lots sizes are 20+ acres.

FIGURE 2.1 - RURAL RESIDENTIAL EXAMPLES

SINGLE FAMILY (ESTATE AND LOW DENSITY RESIDENTIAL)

Detached single family dwellings on individual lots with public or private street frontage and driveway access. Lots may also be served by an alleyway. Lots sizes range from 8,000 to 1+ acres. Typical density is 2 to 5 lots per acre.

Dwellings should have front porches, windows, and front entryways that dominate the street presence. The appearance of garage doors should be minimized.

FIGURE 2.2 - SINGLE FAMILY RESIDENTIAL EXAMPLES

MEDIUM DENSITY RESIDENTIAL

Single family dwellings attached horizontally side-by-side (in a row), and can be back-to-back, with one or more units. Units may be located on individual lots or on a common association lot under a condominium regime. Each unit typically has public or private street frontage and may be served by an alleyway. Garages are typically tuck-under or first floor attached. Units have individual entryways. Densities range from 5 to 12 dwelling units per acre.

Rowhouse style units should be placed close to the street and include front porches. Garages should be encouraged to be rear loaded.

FIGURE 2.3 - MEDIUM DENSITY SENIOR HOUSING EXAMPLES

FIGURE 2.4 - MEDIUM DENSITY RESIDENTIAL EXAMPLES

HIGH DENSITY RESIDENTIAL

Single family dwellings attached horizontally (side-by-side and back-to-back) and vertically with 3 or more units. If only attached horizontally, units may be located on individual lots or on a common association lot under a condominium regime. If vertically attached, units are typically located on an association lot under a condominium arrangement. Units may or may not have public street frontage and may be served by an alleyway. Garages may be tuck-under, first floor, or stand-alone garage units in a common parking area. Units have individual entryways. Densities range from 5 to 16 dwelling units per acre.

Building units should be 2 to 4 stories tall, have a high-level of exterior finish, utilize brick and/or stone and include heavy trim elements, and patios or balconies. Building units typically have a shared entryway into the building and a common interior corridor to access individual units. The design of the buildings should include variable roof and exterior wall planes and finish details that divide the mass of the buildings and add visual interest. Garages should be located in a manner to reduce their public visibility and impact.

FIGURE 2.5 - HIGH DENSITY SENIOR HOUSING EXAMPLES

FIGURE 2.6 - HIGH DENSITY RESIDENTIAL EXAMPLES

MIXED USE

Buildings that include a combination of residential, retail, and office uses. Retail and office uses are typically on the first floor and residential dwelling units are located on the upper floors. Parking may be under-building, adjoining parking ramp, and/or shared surface parking in a common parking lot. Approximately 30% of the land area is used for commercial with a building floor area ratio ranging from 0.4 to 0.6 and the remaining 70% for residential use with dwelling unit densities of up to 16 dwelling units per acre.

Buildings should be located close to the street, be 2 to 4 stories tall, have a high level of exterior finish, utilize brick and/or stone and include heavy trim elements, canopies, overhangs, and patios or balconies. The design of the buildings should include variable roof an exterior wall planes and finish details that divide the mass of the buildings and add visual interest. Outdoor seating areas and pedestrian spaces should be included and visually undesirable elements such as loading docks, trash dumpsters, utility meters should be located in inconspicuous areas and screened.

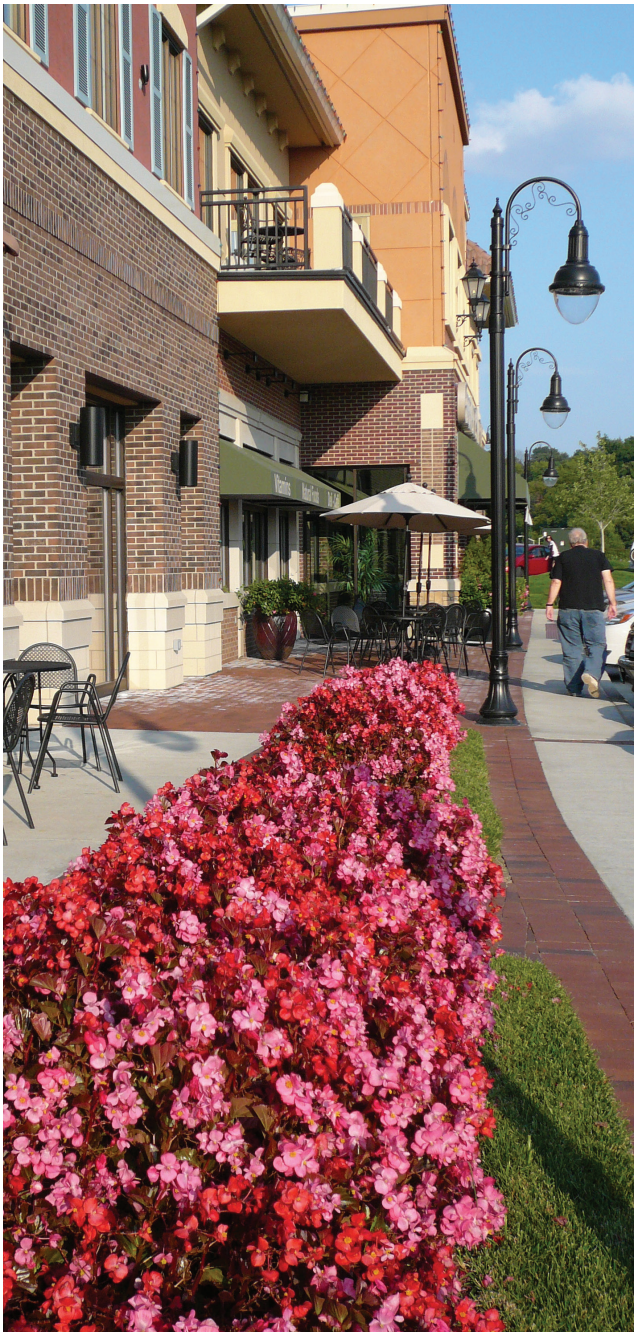


FIGURE 2.7 - MIXED USE EXAMPLES

OFFICE

Professional office uses consisting of single or multi-tenant buildings that are 1 or more stories tall. Site sizes can range from small single user building lots to large corporate campuses with a floor area ratio of 0.3. Retail uses are typically not allowed within office districts.

Sites should be well landscaped and buildings should have a high level of exterior finish with brick and/or stone as the primary element to promote a professional image.

FIGURE 2.8 - OFFICE EXAMPLES

COMMERCIAL

Retail uses intended to serve the local residential area, the entire community, and/or the regional area. Sites are 5 to 20+ acres with a building floor area ratio of 0.25.

When applicable, the intensity and type of allowed uses need to be limited to be compatible with adjoining residential areas and site design characteristics need to take in consideration of their potential impacts. Franchise architecture should be discouraged and sites should be designed to accommodate pedestrians as well as vehicular traffic.

FIGURE 2.9 - COMMERCIAL EXAMPLES

BUSINESS PARK / LIGHT INDUSTRIAL

Professional office uses including light manufacturing and warehousing. Sites can range in size from individual users, flex space for multi-tenant business parks, and corporate campuses with a floor area ratio of 0.35.

Special care needs to be made to appropriately screen negative elements including loadings docks, trash dumpsters, and external mechanical equipment. Exterior storage should be prohibited.

AIRPORT / HEAVY INDUSTRIAL

County Airport site and airport related functions, uses, and businesses including professional office uses, shipping, distributing, warehousing, wholesaling, repair, manufacturing and fabrication uses. Sites can range in size from individual users, flex space for multi-tenant business parks, and corporate campuses with a floor area ratio of 0.35.

Special care needs to be made to appropriately screen negative elements including loadings docks, trash dumpsters, external mechanical equipment, and outdoor storage yards. Uses and sites and buildings must not conflict with the functions of the airport.

FIGURE 2.10 - BUSINESS PARK / LIGHT INDUSTRIAL EXAMPLES

FLOODPLAIN

Areas within the 100 year flood plain as designated by FEMA.

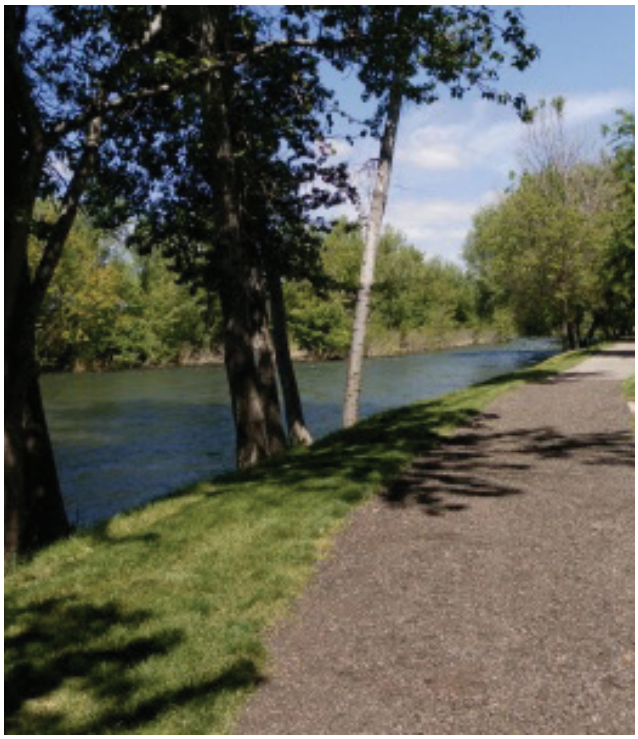


FIGURE 2.11 - FLOODPLAIN EXAMPLES

CIVIC

Public or Civic uses including schools, government offices, institutional uses, golf courses, cemeteries, and churches.

FIGURE 2.12 - CIVIC EXAMPLES

PARKS

Public and privately owned parks and recreation facilities and greenbelts.

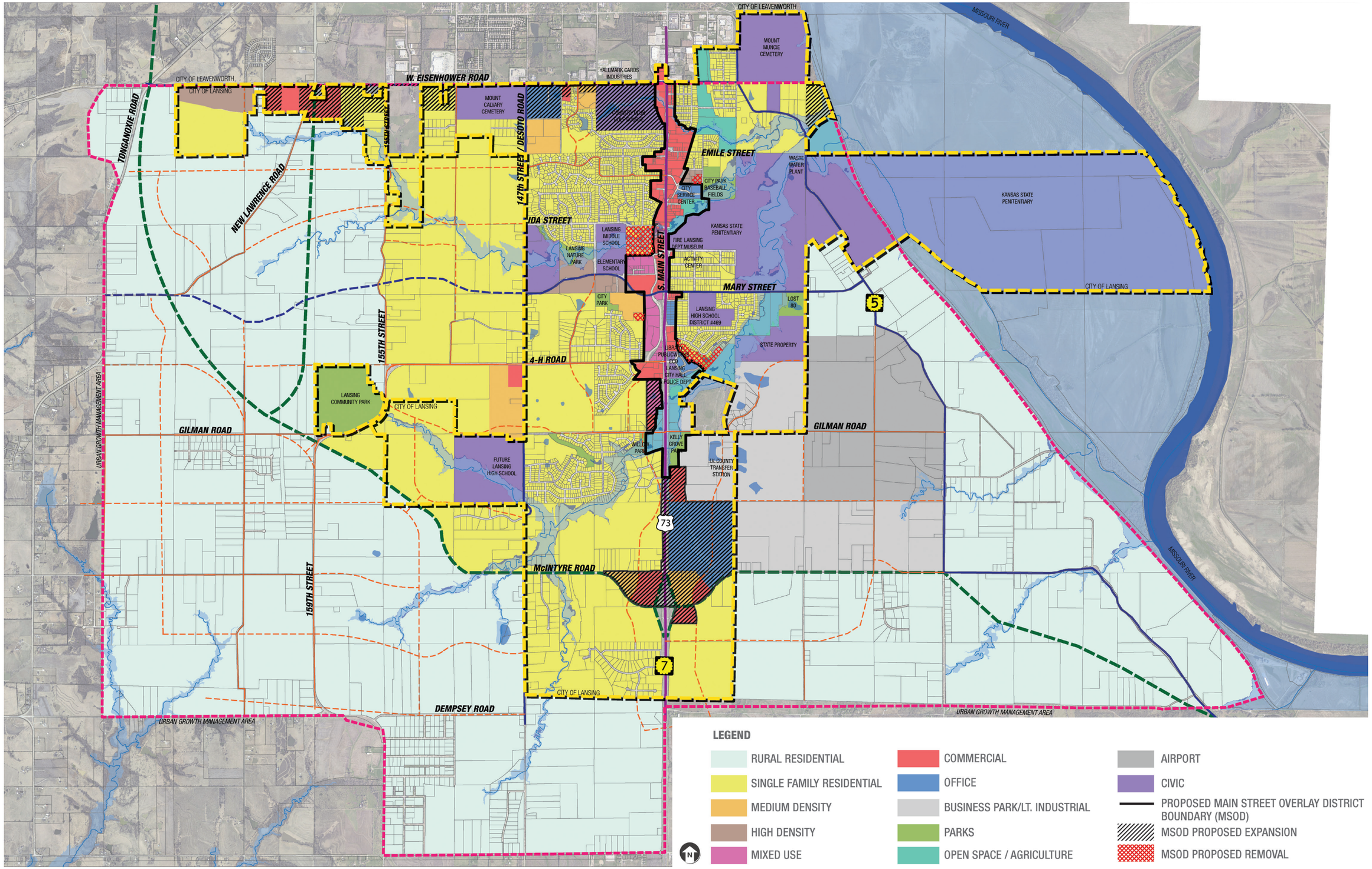
FIGURE 2.13 - PARK EXAMPLES

OPEN SPACE / AGRICULTURE

Areas of land significantly impacted by flood plain or steep topography or areas of natural tree cover that have limited development potential. Uses of the property should be limited to those permitted in the A-1 zoning district subject to the flood plain development regulations.

FIGURE 2.14 - OPEN SPACE / AGRICULTURE EXAMPLES

MAP 5 | FUTURE LAND USE MAP



LEGEND

- RURAL RESIDENTIAL
- SINGLE FAMILY RESIDENTIAL
- MEDIUM DENSITY
- HIGH DENSITY
- MIXED USE
- COMMERCIAL
- OFFICE
- BUSINESS PARK/LT. INDUSTRIAL
- PARKS
- OPEN SPACE / AGRICULTURE
- AIRPORT
- CIVIC
- PROPOSED MAIN STREET OVERLAY DISTRICT BOUNDARY (MSOD)
- MSOD PROPOSED EXPANSION
- MSOD PROPOSED REMOVAL

ZONING ORDINANCES AND SUBDIVISION REGULATIONS

UPDATE TO THE ZONING AND SUBDIVISION REGULATIONS

Input during the original 2001 Comprehensive Planning process from the Land Use Committee indicated that the zoning ordinance and subdivision regulations should be amended to reflect the strong desires of the community for:

- open space, greenways and pedestrian connections within developments, between adjacent developments, and throughout the community;
- business developments that are aesthetic and incorporate high quality building materials, appropriate building orientation, and parking designed to minimize impact on the overall development;
- diverse development opportunities for residential neighborhoods, including cluster housing and rural residential; and,
- significant landscape and street tree amenities throughout the community.

As a product of these discussions, the Main Street Overlay District (MSOD) has been adopted that incorporates all elements of a Uniform Development Ordinance (UDO). A UDO combines the regulations typically found in a zoning ordinance with the subdivision regulations into one unified document and specifies the required review and approval process (the development plan process) necessary for varying levels of development and platting. In order to support and further advance the goals identified within this plan, the zoning and subdivision regulations should be updated. One possible option is the creation of a city-wide UDO, based upon the framework of the MSOD.

ADDITIONAL ZONING DISTRICTS

Revisions need to be made to the current zoning districts and new districts need to be established to reflect the intent of the new Land Use Categories defined in Table 15 on page 24. This can be accomplished by revising the Zoning Regulations or by adopting a Unified Development Ordinance in addition to the Main Street Overlay District as noted in the section above. In either case, additional districts that correspond with the land use categories will be required, as outlined below:

- A rural residential district for development of large lots (twenty acres or more) in rural areas with appropriate soil capacity to allow septic systems;
- An estate residential district (approximately 32,500 sq. ft. to one plus acres);
- Conservation or cluster residential overlay district which can be applied to any of the single family districts to allow close groupings of homes on the most buildable portions of a site while preserving large open space and/or conservation areas;
- An office district strictly for office development;
- A mixed use district or overlay district to allow for developments with some amount of residential and commercial within each phase of the development; and
- A civic/park district for public or civic uses including parks and recreational facilities, greenbelts, public and private schools, government offices, institutional uses, golf courses, cemeteries, and church and religious facilities.

OPPORTUNITIES AND CONSTRAINTS

CONSERVATION AREAS AND GREENWAYS

The concept of greenways and open space was a recurring theme throughout the Comprehensive Plan process. At this time, the City of Lansing cannot feasibly own all of the open space within the city. However, with amendments to the current zoning ordinance, conservation areas (100 year flood plain, excessive slopes, vegetation) can be preserved as private open spaces, many with public trail easements, while still encouraging development. Additionally, buffering ordinances and streamway protection policies should be pursued. The Hillbrook Subdivision, developed south of East Mary Street, includes private open space with a public easement in an area within the 100-year flood plain. This is an example of conservation land designated for the good of the community. Most of the other undeveloped parcels within the community have similar or more severe constraints. With conservation zoning, open space can be saved while still making the land economically feasible for an investor to develop.

DEVELOPMENT PLAN APPROVAL PROCESS

Most commercial development will occur within the confines of the Main Street Overlay District and as such will be subject to the preliminary and final development plan process. Should additional development occur outside of this legal boundary, then the planned and Planned Unit Development Process allow the preliminary and final development process to encourage diversity in development.

UNDEVELOPED PARCELS WITHIN THE CITY OF LANSING

Few parcels remain within the City of Lansing. Most that remain undeveloped have some site constraints. Despite these constraints, potential exists for high quality developments that represent community desires. Additionally, the construction of West Mary Street and the improvements on Main Street have significantly impacted the development potential of several parcels in that vicinity.

SENIOR HOUSING

As the population of the Lansing area continues to age, in line with state and national trends, the community has the opportunity to develop a variety of residential projects geared to senior living, ranging from townhomes and patio homes, to apartments, to a range of institutional living facilities providing services to aging persons. Conversely, as the population ages, a good deal of the existing single family detached housing stock in the community will become available for occupancy by younger households in the Lansing area.

COMMERCIAL / BUSINESS / INDUSTRIAL

VISION

AN ENVIRONMENT CONDUCIVE TO THE ATTRACTION AND RETENTION OF COMMERCIAL BUSINESS APPROPRIATE FOR AND ADEQUATE TO SUPPORT LANSING COMMUNITY NEEDS

The vision, goals and recommendations contained herein serve as guidelines for making decisions concerning future development in the Lansing community. This vision statement defines a long-range image for the community. The goals articulate the concepts necessary to achieve the vision for the community. Finally, the recommendations provide suggested policies and actions to enable the community to achieve the goals.

GOALS AND RECOMMENDATIONS

GOAL: ANCHOR BUSINESS DISTRICTS THAT COMPLEMENT EXISTING AND FUTURE BUSINESSES AND INCORPORATE UNIFORM ARCHITECTURAL AND LANDSCAPING THEMES

- Developers should be encouraged to provide high quality materials and attractive designs within buffer zones adjacent to other uses and around service areas.
- Open space should be used as an amenity, particularly in larger business developments.
- Attractive business district gateways should be encouraged.

GOAL: PURSUE AND PROMOTE COMMERCIAL SERVICES THAT ARE EASILY AND SAFELY ACCESSIBLE AND ATTRACT RESIDENTS AND VISITORS TO THE AREA

- Mixed-use developments should be promoted with a blend of commercial, office and residential uses that encourage community interaction.
- Developers should be encouraged to provide adequate land for pedestrian access between businesses, to residential areas, and to greenways to avoid narrow unusable strips of land.
- Greenways, both publicly and privately owned, should be used as pedestrian/bicycle linkages between different parts of the city.
- Loading/service areas should be located away from consumer areas and screened from view.
- Physical separation with appropriate screening should be provided between residential areas and business service areas, manufacturing areas, and storage areas.

GOAL: PROVIDE A RANGE OF COMMERCIAL SERVICES THAT SATISFIES THE FULL SPECTRUM OF CONSUMER REQUIREMENTS

- Economic development strategies for attracting consumer-oriented services should be implemented.
- Strategy for leveraging opportunities presented by growth in government agencies and services should be developed.

GOAL: EXERT RESPONSIBLE CONTROL OF COMMERCIAL PLANNING AND DEVELOPMENT PROGRAMS IN ORDER TO FACILITATE AND ENHANCE FUTURE GROWTH

- The development plan review process should be a part of every new development.
- Developers should be encouraged during the development plan review process to provide high quality open space rather than simply "waste" land.
- Smaller parking areas located adjacent to individual buildings are preferable to massive lots located in front of buildings or along the right-of-way.
- High profile, quality light industrial businesses should be located on the periphery of new business parks.
- Manufacturing, warehousing, and storage industrial businesses should be located away from major roadways and screened from view.
- New developments should be allowed only where public water/sanitary sewer are available and adequate capacity exists.
- The conversion of single family structures for business use should not be permitted.

GOAL: WORK WITH THE COUNTY AND OTHER PARTNERS TO PROMOTE THE DEVELOPMENT OF THE LEAVENWORTH COUNTY AIRPORT WITHIN LANSING'S URBAN MANAGEMENT GROWTH AREA

- Continually look for funding opportunities, grants, and additional partners.
- Periodically review and update the County Airport Study in partnership with the County.

IMPLEMENTATION STRATEGY

Action statements were prepared and approved by Comprehensive Plan committees. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next couple of years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Commercial/Business/Industrial Land Use Action Statements are provided below.

HIGH PRIORITY ACTIONS

- Update the current version of the Future Land Use Plan.
- Maintain a future land use map that allocates adequate land for commercial developments that meet the demands of the market.
- Extend the Main Street Overlay District into annexed areas south of the current boundary and along Eisenhower.
- Pursue extraterritorial zoning and subdivision authority in the identified Lansing area of interest or establish joint planning with Leavenworth County.
- Encourage the rezoning and redevelopment of properties to be consistent with the Future Land Use Plan and evaluate all future rezoning applications for consistency with the Future Land Use Plan as well as the goals contained within this plan.
- Update the zoning and subdivision regulations to support and advance the goals of this plan - potentially through the creation of a uniform development ordinance (UDO).

MEDIUM PRIORITY ACTIONS

- Expand and refine current standards for commercial and industrial developments that address architecture, signage, parking, sidewalks, drainage, utilities, lighting, pedestrian facilities (benches, handicap access, trash receptacles), screening of service areas and trash dumpsters, open space, landscaping, and trail connections to residential developments and public facilities.
- Create an economic development strategy based on the recommendations in this plan, including funding for incentives.
- Search for funding opportunities, grants and additional partners for the development of the Leavenworth County Airport within Lansing's growth area, and periodically review and update the Airport Study in partnership with the County.

RESIDENTIAL

VISION

QUALITY AND DIVERSE RESIDENTIAL NEIGHBORHOODS THROUGHOUT THE LANSING COMMUNITY

GOALS AND RECOMMENDATIONS

GOAL: COORDINATE EDUCATIONAL, RECREATIONAL AND COMMERCIAL ENDEAVORS THAT TAKE ADVANTAGE OF THE DIVERSITY OF THE LANSING COMMUNITY

- Mixed-use developments that include significant open space, businesses, and residential uses (typically multi-family) should be encouraged in typical suburban layouts (uses separated) or neo-traditional layouts (uses integrated). Neo-traditional layouts in this context of urban design is defined as development that includes a mix of multi-family, retail, and office uses; is compact in design with buildings typically 2 to 3 stories in height and oriented close to the street and close to each other; provides for pedestrian walkways and bike paths/lanes; and has outdoor pedestrian spaces including plazas, courtyards, and patios. Although automobile access and parking is typically accommodated, it is not the driving factor in the design and layout of the development.
- Encourage developments that logically integrate uses so that infrastructure and open space can be shared.
- Each residential neighborhood should be provided with its own local open space in addition to creating a community-wide open space network.
- New developments should designate quality land for play areas (minimum of one centrally located within each one square mile area).

GOAL: REQUIRE RESIDENTIAL AREAS CONNECTED BY INTEGRATED SYSTEM OF ROADS, TRAILS, AND SIDEWALKS

- Local streets should be designed to connect adjacent developments (avoiding dead end streets and "gated" communities).
- Future neighborhoods should be designed to provide convenient walk/bike opportunities to other places within the community.
- Adjacent developments should be designed with a system of interconnecting bicycle and pedestrian paths including, but not limited to, those identified on the plan and others designated by the Planning Commission. Bicycle and pedestrian trails and greenways should be identified and/or constructed prior to or simultaneously with new development. Trails should not be established within existing residential neighborhoods without careful consideration of the impacts and with the input of the affected property owners.
- Greenways, both publicly and privately owned, should be used as linkages between different parts of the city. Private ownership and maintenance of greenways and trails should be encouraged with public access rights.
- Ensure that all major greenway systems appropriately accommodate standard bicycle and pedestrian trails.

GOAL: PROVIDE A RANGE OF RESIDENTIAL FACILITIES THAT INCLUDES SINGLE FAMILY DWELLINGS AND MULTI-FAMILY STRUCTURES WHICH ACCOMMODATE A DIVERSE COMMUNITY

- A mix of housing styles and types (with visual and economic diversity) should be provided to attract a wide market segment.
- Affordable housing developments that capitalize on public incentives should be encouraged.
- New areas with traditional neighborhood designs should be accommodated with allowances for alleys and reduced setbacks.
- Development in Lansing should explore opportunities to integrate housing geared to senior citizens, including independent living, assisted living, and institutional residential complexes.
- Development should include recreational facilities that would serve an increasingly aging population, including parks, walking trails, and similar amenities.

GOAL: REQUIRE RESIDENTIAL AREAS TO BE WELL LANDSCAPED IN WAYS THAT WILL IMPROVE THE APPEARANCE OF THE CITY.

- Development should include conservation easements or land dedications that protect valuable natural resources (flood plain, excessive slopes, trees) so that those areas can continue to benefit the entire community.
- Cluster housing developments (close groupings of homes) that preserve privately owned conservation areas (flood plain, excessive slopes, and wooded areas) while allowing the developer to realize the full value of the property and minimizing developer costs in roads and utilities should be encouraged.
- Landscape guidelines for front yards and public rights-of-way should be enforced throughout all residential areas.
- Neighborhoods should be designed with street trees, open space, and landscaping.
- In general, the conversion of single family structures for multi-family use should not be permitted.
- Specific building and site design standards for multi-family housing should be developed and adopted into the zoning code.

IMPLEMENTATION STRATEGY

Action statements were prepared and approved by the Comprehensive Plan committees. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Residential Land Use Action Statements are provided below.

HIGH PRIORITY ACTIONS

- Review expected population growth for Lansing and update the future land use plan that allocates adequate land for the diverse residential land use envisioned for the community.
- Reassess the residential zoning categories with emphasis on establishing a rural or suburban zone and a zero lot line or patio home zone.
- Pursue extraterritorial zoning and subdivision authority in the identified Lansing area of interest or joint planning with the county.
- Develop and adopt specific building and site design standards for multi-family housing.
- Encourage the rezoning and redevelopment of properties to be consistent with the Future Land Use Plan and evaluate all future rezoning applications for consistency with the Future Land Use Plan as well as the goals contained within this plan.

MEDIUM PRIORITY ACTIONS

- Continue the Lansing Tree Board and other existing programs (i.e. Master Gardeners) and encourage landscaping through brochures, seminars, and guidance.
- Review appropriateness of the existing sidewalk standards and include provisions for trail connections within subdivisions and to commercial developments and community facilities. Coordinate with Trails System Master Plan.

LOW PRIORITY ACTIONS

- Continue to develop standards for the location of utility easements and utility service lines.
- Review street light requirements and determine standard for evaluating proposed placement of street lights by Westar.
- Consider the appropriateness of separate standards for rural residential areas.
- Research the need, potential locations, assistance programs, and potential developers for elderly and affordable housing.

03 TRANSPORTATION

A properly planned and executed transportation plan is essential for providing efficient, convenient, and safe circulation throughout the City of Lansing. This section of the Comprehensive Plan sets forth a specific map and vision, goals and recommendations to guide decisions regarding transportation. The Transportation Map, page 45, Thoroughfare Classifications, Standards, and Guidelines, pages 43 and 44, and the Transportation vision, goals and recommendations, page 46, are the basis for decisions regarding transportation planning. Once approved by the City Council, these elements can be implemented by the City of Lansing.

ANALYSIS OF EXISTING ROADWAY NETWORK

Currently, Lansing has three primary categories of streets. This includes local, collector, and arterial, which are generally defined in Table 16, below.

TYPE	RIGHT-OF-WAY	NUMBER OF LANES	WIDTH TYPE
LOCAL	60 FEET	2	28
COLLECTOR	60-80 FEET	2-3	36
ARTERIAL	80-100 FEET	4	52

TABLE 16 - GENERAL CATEGORY OF STREETS

The Seven and Nine Mile Creeks, which converge in Lansing, are a major factor in transportation planning, as these natural creeks, which run generally west to east, are major drainage ways. These streams can only be crossed with a major structure such as a bridge, to manage the adjacent flood plain in the existing developed areas of the city. Not only does this limit the number of north-south streets in the city, it also somewhat defines the alignment of the east-west street network.

Lansing is bisected by a major north-south four lane arterial, U.S. Highway 73, which is also Kansas Highway 7, and Lansing's Main Street. This arterial, which carries an average daily traffic of more than 25,000 AADT (25,400 w/ 920 heavy vehicles), separates the city into an east and west side, and is the primary north-south street in the city. The only north-south through street west of Main Street is Desoto Road, which generally serves as the west boundary of the current city limits. The only north-south oriented road east of Main Street to the Missouri River is State Highway 5. Both of these streets will ultimately serve as major roadways. The potential for construction of any additional north-south streets east of Main Street is extremely limited, and currently not planned due to existing topography.

The major existing east-west streets are 4-H Road, Ida Street, and Eisenhower Road. Of these only Eisenhower is a continuous street across Main Street. Ida Street begins at Main Street, and proceeds West, as does 4-H Road. As such, the east-west street network is very segmented, with no continuous through streets, and 15 "T" intersection streets on the two mile section of Main Street between 4-H and Eisenhower Roads.

Significant progress has been made in planning for and constructing the needed east-west network. At the extreme south end of the city, Gilman Road has been designated as a collector and the first quarter-mile of the street has been completed. The remainder of the street to the west to connect to Desoto Road is planned to be constructed through residential development. The section of Gilman east of Main Street, was constructed to collector standards in 2001 to serve the developing industrial area in the south-east quadrant of Lansing.

A second major project completed in 2002, was the construction of more than a mile of the new West Mary collector street. This provides a continuous collector street from Highway 5 through Lansing to Desoto Road, and will serve as the primary collector street South of Seven Mile Creek.

Also in 2001, was the construction of the Fairlane Extension. This project extended Fairlane across Main Street to the east, and serves as one phase of converting Fairlane and the connecting Holiday Drive into a collector street. The remainder of the Holiday Drive collector was constructed through residential development, completing the collector street from the ball field complex on the far east side of Lansing, through to Desoto Road.

The Main Street project provides several improvements to the east-west road network, with the realignment/extension of Ida and Woodland across Main Street, and similar realignments at Kansas, Helen, Holiday Terrace, Crestview, and Emile. In addition, this project provides some frontage road and generally safe and improved access to and from Main Street.

As a part of the 2014 update to the Comprehensive Plan, the transportation engineering firm, Burns & McDonnell, evaluated the potential impacts for future traffic growth along K-7/US-73/Main Street and Eisenhower Road within the City of Lansing's planning area. Based upon their analysis and an assumption of a 1.5% annual rate of growth in traffic volumes, it is projected that both roads will maintain a Level of Service of A through 2030 without any street widening or other capacity improvements. Burns & McDonnell also analyzed the impact a new county airport may have on Gilman Road and McIntyre Road. No changes in road classifications were found warranted; however, with the development of an airport, the unpaved sections of Gilman Road and McIntyre Road adjacent to the airport may need to be improved and paved to accommodate the increase in traffic. Included within the Appendix section are copies of both traffic impact analyses.

GENERAL INFORMATION

THOROUGHFARE CLASSIFICATIONS

Thoroughfares are classified so that future development can respect the projected future physical design needs of the roadway. The physical standards and guidelines are discussed in greater detail in the following section and in Table 17. The current thoroughfare classifications have been amended to reference safe and efficient rather than rapid progression of traffic.

The thoroughfare classifications are summarized below:

- TRAFFIC WAY: Major roadway with or without medians accommodating large volumes of traffic with limited access. Primarily used for safe progression of through traffic. Typically controlled by federal or state government.
- MAJOR ARTERIAL: Major street with or without medians accommodating high volumes of traffic and controlled access. Primarily used for safe and efficient circulation of high volumes of traffic between sections of the city and across the urbanized area. Does not primarily serve as direct access to abutting property.
- MINOR ARTERIAL: Street with moderate volumes of traffic and controlled access. Direct access to abutting properties is allowed. Primarily used for safe and efficient circulation of traffic between areas and across the city.
- COLLECTOR: Street with low traffic volumes and unlimited access. Primary use is for circulation within residential areas and between land uses. Collectors distribute traffic from local streets to arterial streets. Direct residential access should be limited.
- LOCAL STREET: Street with low volume of traffic, slow design speeds, and unlimited access. Primarily used for direct access to abutting land.

	RIGHT OF WAY STANDARDS	PHYSICAL DESIGN GUIDELINES		TRAFFIC VOLUME CAPACITY
		NUMBER OF LANES	STREET WIDTHS	
TRAFFIC WAY	VARIES	VARIES	VARIES	VARIES
MAJOR ARTERIAL	120'	4 TO 6	52' OR MORE	28,000 - 42,000
MINOR ARTERIAL	100'	2 TO 5	28' OR MORE	12,000 - 28,000
COLLECTOR	60'	2 TO 3	36' TO 44'	1,500 - 12,000
LOCAL STREET	60'	2	28'	LESS THAN 1,500

TABLE 17 - THOROUGHFARE STANDARDS AND GUIDELINES

THOROUGHFARE STANDARDS AND GUIDELINES

Traffic calming design techniques (changes in roadway width, curb location, street trees, landscape plantings) may be desirable for making a roadway safe and convenient versus rapid. Traffic calming and related techniques are discussed in greater detail in Opportunities and Constraints.

Physical improvements to existing roads often cannot be designed to meet the guidelines due to situations related to building setback and current construction. Existing streets should be assessed individually during the design process prior to improvement.

Bicycle lanes are proposed on some of the major streets. Standards for construction of bicycle lanes should be adopted so that new roadway construction and improvements to existing roadways can accommodate the bicycle lanes identified in this plan (and any others designated by the Planning Commission).

The subdivision regulations require that sidewalks be located 6" from the property line. The location of sidewalks should also consider conditions within developments, design considerations (neo-traditional designs versus suburban), and location of sidewalks in adjacent subdivisions.

OPPORTUNITIES AND CONSTRAINTS

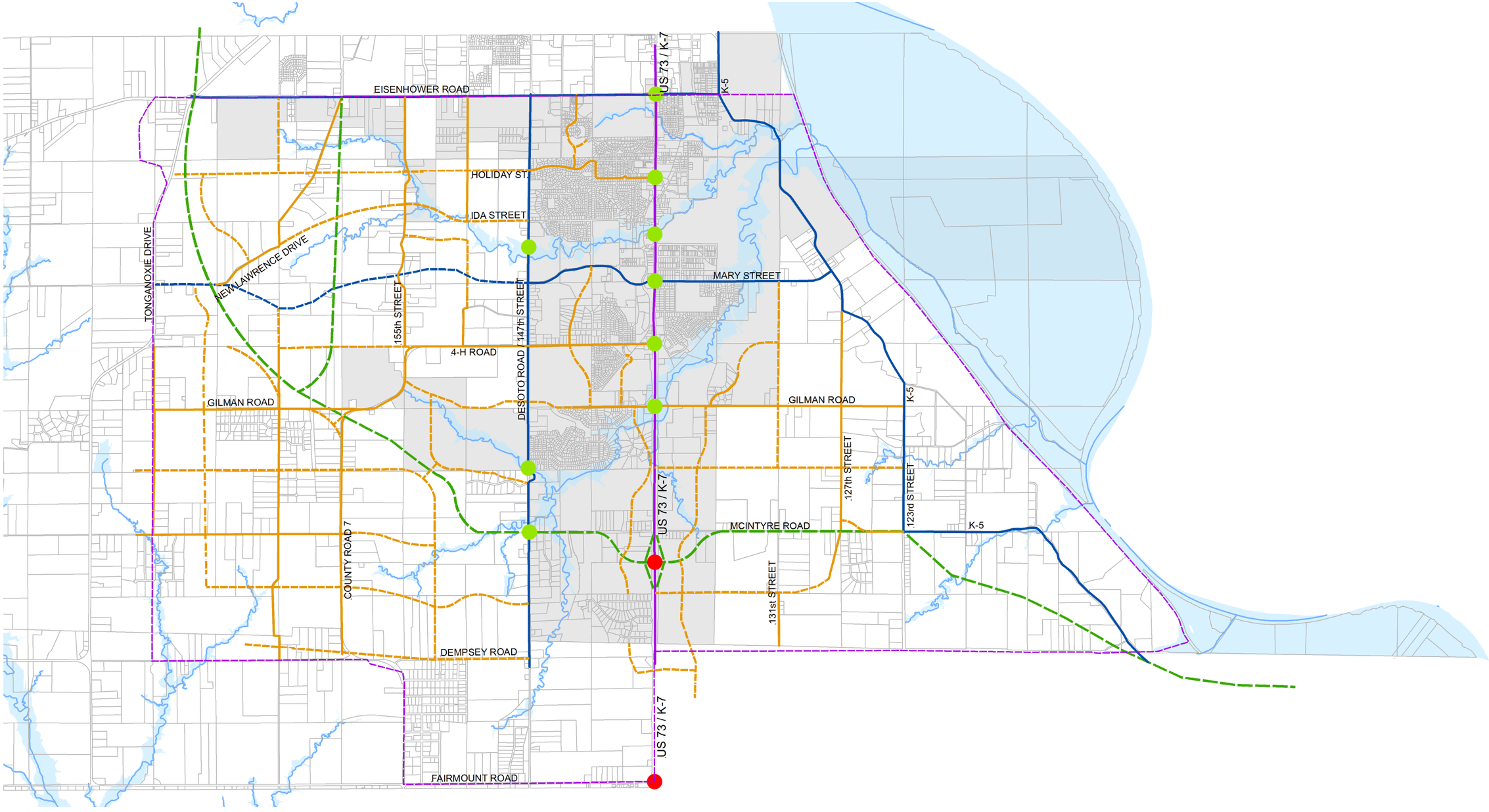
TRAFFIC CALMING TECHNIQUES

Many traffic calming techniques exist which use changes in roadway width and curb and gutter locations as well as increased landscape and other streetscape elements to create a pleasant and safe street environment. These techniques create an environment that slows traffic and increases motorist awareness.

STREET TREE PLANTINGS

Mature street trees throughout the city were identified as desirable elements during this update process. This is a very worthy objective that takes time to achieve. Although mature street trees take some years to realize, the impact on the character of an area and ultimately on property values is tremendous. This Comprehensive Plan update includes many policies related to street tree plantings. These policies impact both publicly and privately funded improvements. Many major roadway projects are currently funded with implementation in the next year. Additionally, the city regularly plans to improve the street system throughout Lansing. In the future, adequate funding for street trees should accompany all publicly funded street improvement projects. The Lansing Tree Board should develop an annual report on streetscape on January 1 of every year, subject to funding.

MAP 6 | TRANSPORTATION MAP



LEGEND

- URBAN GROWTH MANAGEMENT AREA
- CITY LIMITS
- COUNTY PARCEL
- STREAMS
- FLOODPLAIN
- ENHANCED PEDESTRIAN/BICYCLE CROSSING
- INTERCHANGES
- COLLECTOR
- COLLECTOR - PROPOSED
- MAJOR ARTERIAL
- MINOR ARTERIAL
- MINOR ARTERIAL - PROPOSED
- TRAFFICWAY - PROPOSED

TRANSPORTATION SYSTEM

VISION

A TRANSPORTATION SYSTEM THAT PROVIDES CONVENIENT, SAFE ACCESS TO THE CITY OF LANSING AND SURROUNDING AREAS AND WHICH WILL ENHANCE FUTURE GROWTH OF THE CITY AND THE QUALITY OF LIFE OF ITS CITIZENS.

The vision, goals and policies contained in this section serve as guidelines for making decisions concerning future development in the Lansing community. The vision statement defines a long range image for the community. The goals articulate the concepts necessary to achieve the vision for the community. Finally, the recommendations provide suggested policies and actions to enable the community to achieve the goals.

GOALS AND RECOMMENDATIONS

GOAL: ENHANCE THE MAIN STREET CORRIDOR TO PROVIDE FOR SAFE AND CONVENIENT ACCESS TO RESIDENTIAL AND COMMERCIAL DISTRICTS.

- Very high quality Main Street enhancements should be designed and funded to establish high standards for adjacent land uses. Implementation of the MSOD Ordinance will ensure an enhanced Main Street corridor.
- High quality pedestrian walkways and bicycle paths should be pursued.
- Open space, landscape, and public art should be encouraged through the MSOD. Planning should continue for potential access points and interchanges.

GOAL: DESIGN AND IMPLEMENT AN INTERCONNECTING ROAD SYSTEM THAT PROVIDES NORTH-SOUTH AND EAST-WEST COLLECTOR OR ARTERIAL STREETS EVERY 1/2 MILE.

- Funding should be allocated to continue collector and arterial street improvements.
- Aggressively pursue joint planning and further define the location of 30th Street Trafficway.
- Funding for Ida, McIntyre Road, and Gilman Road should be aggressively pursued.

GOAL: PROVIDE THE CITY WITH QUALITY, DURABLE STREETS THAT PROVIDE SAFE AND CONVENIENT ACCESS TO RESIDENTIAL AND COMMERCIAL DISTRICTS.

- All road planning/design projects should be coordinated with planning for adjacent land uses.
- Traffic calming techniques should be utilized to encourage appropriate speeds.
- Speed limits and traffic control signing should be based on traffic engineering studies in accordance with the Manual on Uniform Traffic Control Devices.
- Excessive use of cul-de-sacs should be avoided.
- Street tree plantings and open space should be included in roadway improvement projects to create a quality street environment when designated by the annual plan or development condition.
- Quality bicycle lanes should be provided on road, where designated by the plan (or by the Planning Commission).
- Safe pedestrian and bicycle crossings should be provided at intersections with off-street trail systems.
- Local street improvement projects should be funded in existing older neighborhoods through the City's Capital Improvements Program.
- Generous rights-of-way, when available, should be used to promote high quality pedestrian spaces.

GOAL: COORDINATE PLANNING FOR QUICK, CONVENIENT, AND SAFE ACCESS TO KC METROPOLITAN AREAS, KCI, AND THE INTERSTATE HIGHWAY SYSTEM.

- Funding and planning should be aggressively pursued for improvements to K-5.
- Establish a more direct route to KCI.

IMPLEMENTATION STRATEGY

Action statements were prepared and approved by Comprehensive Plan committees. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Transportation Action Statements are provided below.

HIGH PRIORITY ACTIONS

- Revise the thoroughfare plan to accommodate current objectives throughout the entire Lansing area of interest and incorporate changes since the last Comprehensive Plan (accomplished with approval of this plan).
- Develop, design, and execute the existing Main Street System Enhancement Proposal (including intersection improvements, street widening, center turn lanes, traffic control devices, frontage or reverse frontage roads, bridge widening, bicycle paths, sidewalks, enhanced pedestrian crosswalks, green space, landscaping, utility burial/relocation and uniform lighting) to work in concert with an overall Main Street Development Strategy.
- Continue an incremental street repair program to accomplish city-wide repairs at a constant rate and improvements to K-7.

MEDIUM PRIORITY ACTIONS

- Through a planning alliance with the County, an interchange system should be incorporated into the plan.
- Continue to keep up-to-date the street specifications adopted in 2003.
- Fund Ida, McIntyre, and Gilman Road projects.
- Study the concept, potential location, and impact of an alternate route to serve west Lansing (K-5 corridor, as well as 30th Street Trafficway).

LOW PRIORITY ACTIONS

- Develop a distinct Lansing identity through the implementation of street trees, landscaping, and gateways within the Lansing city limits.
- Develop a concept for improved access to the Interstate Highway system.
- Coordinate the design of proposed frontage road access for Highway 7/73 with KDOT.

04
COMMUNITY FACILITIES

Community facilities and services are an essential part of the benefits of an organized local government. Growth within a community demands the continual upgrade and new development of facilities and services. The local government is often evaluated primarily on the quality of public services and facilities available. Superior quality facilities and services generate positive perceptions and contribute to an increase in population base. The City of Lansing currently attracts a large percentage of the county population growth and has the potential to attract an even greater percentage. Therefore, continual upgrades and new development of facilities and services are both necessary and desirable. This section of the Comprehensive Plan addresses community facilities and services, including the parks and recreation system, public safety, utilities, community and activity centers, library, education, and other public facilities. Map 8, Community Facilities Map, page 59, and Map 9, Trails System Master Plan, page 60, and the various vision statements, goals, and recommendations, pages 61-67 are the basis for decisions regarding Community Facilities/Services. The vision statements define a long-range image for the community. The goals articulate the concepts necessary to achieve the vision for the community. Finally, the recommendations provide suggested policies and actions to enable the community to achieve these goals.

GENERAL INFORMATION

Over the past several years the City of Lansing has pursued a number of programs to enhance and expand the facilities and services available to the community. This plan provides recommendations to guide and continue the efforts over the next several years. These recommendations are based on analysis of existing facilities/services and input by the Comprehensive Plan committees.

EXISTING PARKS AND RECREATION FACILITIES

A parks and recreation system includes sites, facilities, and programs that provide recreational services, link community facilities and protect and enhance environmentally sensitive areas. The parks and recreation system for Lansing includes city owned properties, but also depends on school recreation facilities and local private recreational facilities, such as GreatLife Golf and Fitness.

CITY SITES AND FACILITIES

The existing parks and recreation system is currently maintained through the city budget. There is a Director and a specific Parks and Recreation Department that manages and maintains programs. The Parks and Recreation Department is assisted with different programs by a group of volunteers appointed by the City Council. The Parks and Recreation Advisory Board acts principally in an advisory capacity to the city staff and the City Council in all matters pertaining to parks and recreation, advising on maintenance, operation, planning, acquisition, development, enlargement, and use policies. The existing system within Lansing includes six parks.

The six parks that are currently part of the system are all of neighborhood scale, with the exception of the newly constructed Kenneth W. Bernard Community Park. Lansing City Park and Willow Park, however, currently function as community parks/play fields. Lost 80 Park is a neighborhood park located on state land leased by the city. It includes only passive recreation at this time. Highland Playground and the other pocket parks on Highland Drive can be considered sub-neighborhood parks/open spaces.

Kenneth W. Bernard Community Park

This park is located west of Gilman and 4-H Roads. There are soccer fields, stocked fishing areas, playground, shelter, natural surface trail, and a central parking area. There are a number of common open recreation areas. The park is approximately 128 acres.

City Park

This park is located on North Second Street and American Avenue. There are 4 lighted baseball fields, one unlit field, a batting cage, and a playground. An ADA accessible restroom, concession stand, and a one-half mile walking trail. The outfields are used seasonally as a practice soccer field and practice youth football field. All fields are available for rent if no other activity is scheduled.

Willow Park

This park is located on West Gilman Road at the entrance to Rock Creek West. It has one full size multi-use soccer field, two under-6 and two under-8 multi-use soccer fields, and a practice area. A playground and restrooms are available. Fields are available for rent if no other activity is scheduled (currently 2-U6, 2-U8, and 1-U10 fields).

Lost 80 Park

This park is located on East Mary Street. The park is on state owned land leased by the city. It is comprised of a stocked fishing lake, playground, restrooms, picnic area with pavilion, and two sand volleyball pits. A Kansas fishing license is required and Kansas Department of Wildlife, Parks and Tourism regulations must be followed.

Highland Playground

This park is located on Highland Drive. The pocket park is equipped with playground equipment. Three additional pocket parks are also located on Highland Drive; two are undeveloped and one has a gazebo.

Kelly Grove Park

This park is located on U.S. Highway 73 and east Gilman Road. There is a mulched trail, fire pit, benches and picnic tables, and an open area in the lower level. On the upper level, there is a separate trail with access further east along Gilman Road.

SCHOOL DISTRICT SITES AND FACILITIES

The school district facilities should also be considered when identifying public recreation facilities. Soccer, football, and basketball facilities are currently utilized. A description of the sites and facilities is provided below:

Current Lansing High School Site

Located on East Lion Lane, this facility includes tennis courts, a football field and track, two practice fields, and a baseball diamond.

Lansing Middle School Site

Located on Ida Street, this facility includes one practice soccer fields, one football field, one track, multi-use indoor courts for volleyball and basketball and one lighted soccer field.

Lansing Elementary School Site

Located on West Mary Street, this facility includes playground areas, basketball courts, US and world stencil maps, tether ball and four square courts.

PRIVATE SITES AND FACILITIES

There is also a private golf course located within the City of Lansing. The Great Life Golf and Fitness, located on Eisenhower Road west of Main Street, includes a golf course, tennis facilities, and a swimming pool. It is only open to use by its members and guests. Although private, this facility is an asset to the community.

PROGRAMS

Most programs offered in Lansing make use of Lansing facilities (for home games).

RECREATION FACILITY STANDARDS

Standards have been prepared for the Kansas City Metropolitan Region (KCMR) by the open space committee at the Mid-America Regional Council (MARC). These are intended to be a standard by which adequacy of parks and recreation facilities may be assessed. They should not be used as a final judgment in themselves. Values within the community may dictate a different quantity. The standards therefore are a useful first step in assessing the local system. The KCMR Outdoor Recreation Facility Standards are presented in Table 18, page 51.

FACILITY	STANDARD
FOOTBALL / SOCCER FIELD (DOUBLE USE	1 FIELD / 4,000 POPULATION
PICNIC SHELTERS	1 SHELTER / 2,000 POPULATION
PICNIC TABLES	1 TABLE / 125 POPULATION
BASEBALL DIAMOND	1 DIAMOND / 3,000 POPULATIONS
SOFTBALL DIAMOND	1 DIAMOND / 1,500 POPULATION
TENNIS	1 COURT / 1,500 POPULATION
BASKETBALL	1 COURT / 1,000 POPULATION
HANDBALL / RACQUETBALL (4-WALL)	1 COURT / 1,500 POPULATION
PLAYGROUNDS	1 PLAYGROUND / 1,000 POPULATION
GOLF COURSE (9-HOLE)	1 COURSE / 20,000 POPULATION
SWIMMING POOL	1 POOL / 5,000 POPULATION
OUTDOOR ICE RINK	1 RINK / 2,500 POPULATION
HIKING TRAILS	1 MILE / 4,000 POPULATION
NATURE OR INTERPRETIVE TRAILS	1 MILE / 2,500 POPULATION
EQUESTRIAN TRAILS	1 MILE / 6,250 POPULATION
BICYCLE / JOGGING TRAILS	1 MILE / 2,000 POPULATION
EXERCISE TRAILS	1 MILE / 7,500 POPULATION
CAMPSITES	1 SITE / 300 POPULATION
SHUFFLEBOARD	1 COURT / 2,000 POPULATION
HORSESHOES	1 COURT / 2,000 POPULATION
BOAT RAMPS	1 RAMP / 5 MILES
VOLLEYBALL COURT	1 COURT / 3,000 POPULATION

TABLE 18 - KCMR OUTDOOR RECREATIONAL FACILITY STANDARDS

EXISTING COMMUNITY AND SCHOOL FACILITIES

COMMUNITY CENTER

The community center, complete with a full kitchen facility, occupies most of the ground floor of City Hall, which was constructed in 1990. The facility can be configured as one large room to accommodate up to 300 persons, or two smaller rooms to accommodate 150 persons. The facility is available for community and individual use seven days a week, and is the site for 185 events this past year, averaging 15 events each month.

ACTIVITY CENTER

The activity center is a two story school building (the original Lansing High School), which was acquired from USD 469, the Lansing School District for one dollar. The facility had been in continuous use as a classroom facility until completion of the new Middle School in 1997. The building contains nine classrooms (six of which are available for rent), a gymnasium complete with stage, as well as office space, restrooms and storage space. The entire first floor of the building complex is ADA accessible. The Parks and Recreation Departments headquarters occupies the former cafeteria area, and is the only full-time building occupant. The remainder of the first floor classrooms are available for community use and serve as meeting space for such activities as Brownies, Cub Scouts, American Legion, etc, offered generally to community organizations at not cost. The facilities are also rented for other activities for private use, such as Taekwondo or aerobics, family gatherings, meetings, etc. The gymnasium facility is managed by the Parks and Recreation Department as part of the Parks and Recreation program, and is available for open gym activities as scheduled. A city employee staffs the building during all scheduled hours of operation. A building study is currently underway.

LIBRARY

The Lansing Community Library, located at 730 First Terrace, is a free public library serving all Kansas residents. The library offers a wide range of adult, juvenile and children's materials, including fiction and nonfiction books, large print books, audio books, and DVDs. The library subscribes to 70-plus magazines and four newspapers. Patrons also benefits from an array of programming, most of which is targeted to children in the form of year-round story time sessions and summer reading programs.

PUBLIC SCHOOL DISTRICT

USD 469, which serves the City of Lansing, and the surrounding area to the south and west, has some of the finest facilities in the state.

The high school building is currently located west of Main Street between E. Mary Street and Olive Street. Construction of the high school building was completed in 1987, and additions completed in 1991 and 2007, with a total building capacity of 898 students.[18] A new high school is under construction along Desoto Road and is projected to be completed in the summer of 2015.

In a study performed by Hollis + Miller Architects in April of 2010, the middle school building, a state of the art building completed in 1997, has a capacity of 583 students.[18] This facility is located on a separate campus site, west of Main Street, adjacent to Ida Street, complete with lighted outdoor football and soccer athletic facilities. Several acres of this campus site remain available for the construction of additional facilities, including the proposed construction of a joint City/School District Recreation complex.

The elementary school building, opened in 2008, is located south of the middle school building along W Mary Street. The capacity of the elementary school building is 974.[18]

A summary of School District facilities is shown in Table 19, and past enrollment figures and future enrollment projections are displayed in Table 20 on page 53.

18 http://www.usd469.net/facilities-2015/long-range-plan/12-districtcat/210-building-capacities.html

	CURRENT USE	YEAR BUILT	CAPACITY[19]	SEPTEMBER 2013 ENROLLMENT[20]
ELEMENTARY	K-5TH GRADES	2008	974	1,084
MIDDLE SCHOOL	6-8TH GRADES	1997	583	621
HIGH SCHOOL	9-12TH GRADES	1987	898	883

TABLE 19 - SCHOOL DISTRICT FACILITIES

YEAR	PAST ENROLLMENT FIGURES
2000-2001	1,953
2001-2002	1,900
2002-2003	2,061
2003-2004	1,989
2004-2005	2,135
2005-2006	2,135
2006-2007	2,289
2007-2008	2,273
2008-2009	2,362
2009-2010	2,596
2010-2011	2,563
2011-2012	2,590
2012-2013	2,649
2013-2014	2,588

YEAR	FUTURE ENROLLMENT PROJECTIONS		
	LOW	MEDIUM	HIGH
2014-2015	2,799	2,997	3,208
2015-2016	2,876	3,150	3,414
2016-2017	2,954	3,305	3,639
2017-2018	3,301	3,476	3,884
2018-2019	3,109	3,653	4,149
2019-2020	3,186	3,837	4,436
2020-2021	3,263	4,038	4,744

TABLE 20 - PAST ENROLLMENT FIGURES[20] AND FUTURE ENROLLMENT PROJECTIONS FOR USD 469[21]

19 http://www.usd469.net/facilities-2015/long-range-plan/12-districtcat/210-building-capacities.html
20 http://svapp15586.ksde.org/k12/CountyStatics.aspx?org_no=D0469
21 http://www.usd469.net/facilities-2015/long-range-plan/12-districtcat/208-demographic-reports.html

EXISTING PUBLIC SAFETY FACILITIES

FIRE PROTECTION

The City of Lansing, the remainder of Delaware Township, High Prairie Township, and the prison property, are all serviced by Fire District 1 Fire Department. Station #1 is located at Kansas Avenue and North Main Street. This facility was recently expanded to accommodate fire protection vehicles. Station #2 is located at 25115 187th Street. The department is comprised of seven paid positions and 20 volunteers. Currently, the department has a fire protection rating of 4.

Some of the future annexation areas have lower fire protection ratings. When annexation occurs, these areas should have an increase in their fire protection rating to match that of the rest of the city. Improvements to the Fire Department facilities and to water mains should be implemented as necessary to maintain this rating. Although it is expected that the volunteer department will be able to accommodate future growth in the area, consideration should be given to preparing a cost benefit analysis of changing to a fully paid fire department should the need arise.

POLICE

The City of Lansing is serviced by the Lansing Police Department which consists of eighteen full-time officers and one part-time animal control officer. The Police Department is located in the City Hall building. The Lansing Police Department uses a form of law enforcement known as community policing. Neighborhood walking patrols are incorporated as one of the many tools of community policing.

EXISTING PUBLIC UTILITIES

SANITARY SEWER

The sanitary sewer system is a city owned and operated utility, with interceptors extending adjacent to the lower reaches of the Seven and Nine Mile Creeks, serving approximately 96% of the residents of the city. Map 7, page 55, shows the areas of the city that are currently served by the sewer system. The city has over 52 miles of sewer ranging in size from 8 inches to 24 inches in diameter. The treatment facility is located on Lansing Correction Facility property, and sludge disposal is by land application. The entire area of the current and future boundaries within the Seven and Nine Mile Creek watersheds are capable of being served by gravity interceptors. The treatment plant underwent expansion and upgrade in 2006 and the city is currently planning upgrades to the Seven Mile interceptor with plans to increase the size of the lowest line segments to 42 inch diameter pipe.

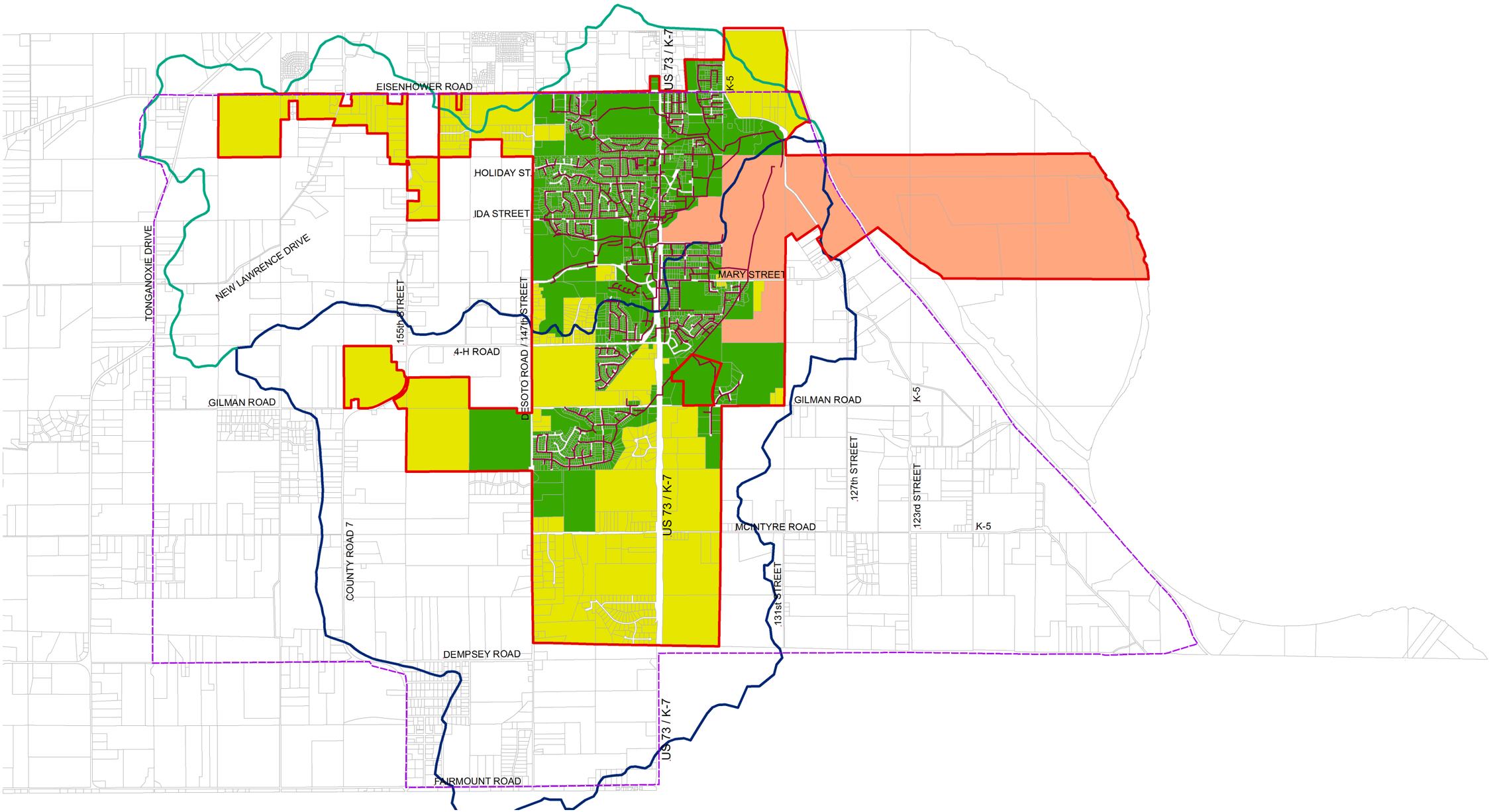
STORM WATER

Storm water management is an ongoing task for the City, as Lansing lies at the bottom of the confluence of the Nine and Seven Mile Creek watersheds. Much of the development of the city has occurred adjacent to these creeks, and management of the storm water for both environmental and flood control is essential. In cooperation with the city, the Federal Emergency Management Agency, has recently completed a detailed flood study of these watersheds, including the more than 6,000 acres outside of the city limits that drains through the city. This revised data was published as Flood Rate Insurance Map for the City of Lansing in 2001. This revised data was the basis for projects to provide bank stabilization, reduce siltation, and improve the environmental quality of the streams through management of the riparian zones. This information can provide the basis for consideration of development of a separate storm water utility to fund storm water improvements.

WATER

Lan-Del Water District is a separate utility distribution entity, governed by an elected board, that provides water to the City of Lansing. The district was specifically charted to provide service to the City of Lansing and Delaware Township. Limited areas of the south boundaries of the city, recently annexed into the city, are supplied by Rural Water District #1, which is also the current supplier of much of the area proposed for future annexation south of the city. The proposed annexation area west of the city is generally supplied by Rural Water District #8.

MAP 7 | SANITARY SEWER MAP



LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *7 MILE CREEK DRAINAGE BASIN*
- *9 MILE CREEK DRAINAGE BASIN*
- *EXISTING SANITARY SEWER LINES*
- *EXISTING SANITARY SEWER SYSTEMS*
- *EXISTING SEPTIC SYSTEMS*
- *LCF PROPERTY*

FACILITIES ANALYSIS

PARKS AND RECREATION

The park system in Lansing has several community parks that are located to adequately meet the needs for parks within short driving or bicycle distance. Recently, the City has acquired a community park, called Kenneth W. Bernard Community Park, that will include facilities relevant to the needs of the community for years to come. The City should continue to design facilities for these parks through a combination of public and professional input and steering committees. The community parks also serve as neighborhood parks for those neighborhoods within a quarter to half mile radius. There are, however, several neighborhoods that do not have neighborhood parks within walking distance. Neighborhood parks include such things as informal fields for open play (or practice games), picnic tables, and children's play structures. When referring to Table 18, KCMR Outdoor Recreation Facility Standards, it is apparent that a shortage of these facilities in Lansing is partly attributed to a shortage of neighborhood parks.

During the previous Comprehensive Plan update, a Parks/Recreation/Swimming Pool Committee identified needs for athletic fields, including softball fields, football fields, soccer fields, and a district baseball facility. The standards in Table 18 indicate that Lansing has an adequate combined number of soccer and football fields (including school facilities). However, the standards only suggest two fields. This seems inadequate and therefore should be examined more closely based on actual usage. The standards indicate that there is probably a need for a combined total of 6-9 baseball and softball fields (currently there are 6 including school facilities). Standards do not exist for district baseball facilities, therefore needs should be balanced against the need for fields as discussed above.

At that time, a Parks/Recreation/Swimming Pool Committee also identified a need for a Swimming/Water Facility. The KCMR Outdoor Recreational Standards indicate that a swimming pool is warranted for a community of this size (1 pool per 5,000 population). This issue was assigned to a citizens' committee appointed to review uses and compile a feasibility study for Kenneth W. Bernard Community Park.

A Master Trails Plan is included in this section of the Comprehensive Plan. The Master Trails Plan will be used during the development plan approval process to preserve easements for trails and to encourage development by the developer of specific sections of trail adjoining each new development. The city should continue to pursue an aggressive program to complete the integrated trails network as shown in the Master Trails Plan and to develop criteria for trail connections that will be developed in existing neighborhoods and subdivisions.

PUBLIC SAFETY AND UTILITIES

The city's Police Department has continued to grow with two additional officers added to the force since 2001. Police services have been extended to the newly annexed areas to the south and west of the city proper. Continued growth of the Police Department, as well as periodic replacement and upgrade of public safety equipment, should be anticipated and planned for. The city should pursue every opportunity to leverage existing and future Homeland Defense initiatives and to further promote interoperability with other public safety and law enforcement agencies in the area.

Fire protection services for the city are provided by Leavenworth County Fire District 1. The city currently provides membership to the Fire District Board and provides substantial funding for the District. Fire District 1 currently provides adequate coverage for the city. Lansing should remain engaged with the Fire District to ensure continuation of adequate fire protection services for the city.

The Fire/Public Safety/Utilities committee that worked on the previous Comprehensive Plan update recommended upgrades to the Wastewater Treatment Facilities. These recommendations have been addressed with the construction of the new Wastewater Treatment Facilities, which was completed in 2005, as well as the drafting of a policy for Best Management Practices relating to storm water detention. The Wastewater Treatment Facility has a capacity of 3.2 million gallons per day, with additional capacity for expansion.

Additionally, although the Water Utility is a separate entity, the City should continue to ensure that all areas of the city have looped mains, adequate fire hydrants, and adequate water pressure. Finally, the City should manage the placement and aesthetic impact of all utilities.

Use of the Community Activity Center has grown steadily since 2001. This center currently houses the Library, Parks and Recreation Department, Public Works, and Community Development. The library is staffed with three full-time staff members and one part-time staff member, as well as several volunteers. As community needs and preferences for a variety of activities continues to grow, it will be necessary to develop plans to provide adequate facilities to accommodate these activities.

Other public facilities such as City Hall, the Lansing Historical Museum, and the Maintenance Building were not discussed in detail by the citizens' work groups, however, the city should continue to upgrade these facilities, including landscape, screening, and public art improvements. Additionally, the city should partner with the local historical society to continue to solicit funds for the construction of the Kansas Regional Prison Museum campus adjacent to the Lansing Historical Museum.

PARKS AND RECREATION CLASSIFICATION SYSTEM

A classification system, as shown in Table 21, is useful for reference in determining the need and desirable size of future parks and recreation facilities. The following classification system is provided for use in determining desirable expansion of the parks and recreation system in Lansing. The standards provided below should be used as reference numbers not as absolute answers for service area, desirable size and acres/1,000 population. Conditions of the area, resident needs and density and the particular site may suggest a greater or lesser need.

	TYPICAL FACILITIES	SERVICE AREA	DESIRABLE SIZE	ACRES PER 1,000 POP	DESIRABLE SITE CHARACTERISTICS
NEIGHBORHOOD PARK / PLAY GROUND	BALLFIELDS, PICNIC AREAS, PLAYGROUNDS	NEIGHBORHOODS 1/4 TO 1/2 MILE RADIUS	3 TO 10 ACRES	3.0 TO 6.0 A	EASY BIKE AND PEDESTRIAN ACCESS, GEOGRAPHICALLY CENTERED, SUITED FOR INTENSE DEVELOPMENT
COMMUNITY PARK	MAY INCLUDE ATHLETIC COMPLEXES AND LARGE SWIMMING POOLS, OR SIMPLE NATURAL AREAS FOR PASSIVE RECREATION	SEVERAL NEIGHBORHOODS 1 TO 2 MILES RADIUS	10+ ACRES	5.0 TO 8.0 A	EASY BIKE AND PEDESTRIAN ACCESS, GEOGRAPHICALLY CENTERED, SUITED FOR INTENSE DEVELOPMENT AND/ OR HAVING HIGH QUALITY NATURAL AREAS
DISTRICT SPORTS COMPLEX	LARGE ATHLETIC COMPLEX	SEVERAL NEIGHBORHOODS 1 TO 2 MILE RADIUS	25+ ACRES	5.0 TO 8.0 A	SUITABLE FOR INTENSE DEVELOPMENT
LINEAR PARK / GREENWAYS	TRAILS FOR WALKING, BIKING, AND HORSEBACK RIDING. MAY INCLUDE LARGE OPEN AREAS FOR ACTIVE PLAY	NO APPLICABLE STANDARD	SUFFICIENT WIDTH TO PROTECT RESOURCES AND PROVIDE MAXIMUM USE.	1,500 - 12,000	BUILT OR NATURAL CORRIDORS, SUCH AS UTILITY EASEMENTS, 100 YEAR FLOOD PLAIN, BLUFFS, WOOD AREAS.

TABLE 21 - PARKS AND RECREATION CLASSIFICATION SYSTEM

OPPORTUNITIES AND CONSTRAINTS

STORM WATER RUNOFF

Regulations exist requiring individual new developments to address water runoff. This is done on a micro-scale and the issues of the entire community can only be addressed on a macro-scale. The City of Lansing is beginning to experience many of the same storm water complications of communities throughout the nation. Fortunately, Lansing is not in the same critical condition of many communities. This will allow the City the opportunity to study and address the issue comprehensively and implement solutions in the most cost effective manner. The City has adopted a policy on Best Management Practices (BMP), a Storm Water Management Policy, and should consider a Stream Buffer Ordinance for storm water runoff.

MAIN STREET CORRIDOR

The Main Street Corridor is discussed in great detail in the Future Growth portion of the plan. However, the importance of Main Street to the community and related community facilities cannot be understated. As the city continues to implement its program to renew Main Street, it should capitalize on all opportunities to improve existing and new high quality governmental facilities (not including school facilities) along Main Street. By ordinance, the city has established the Main Street Overlay District. Consistent application of the standards contained in this ordinance will establish and otherwise protect the architectural, landscape, and pertinent use requirements for properties in the Main Street Corridor.

IMPACT OF FUTURE GROWTH ON SCHOOLS

Aggressive pursuit of future growth will have an impact on the Lansing School District. City efforts to make the area more attractive to developers, both residential and commercial, will open the market to higher population growth, and therefore additional school age children. In an effort to continue to maintain the quality of the schools and expand their student enrollment capacity to accommodate the growth within the district boundaries, the school district constructed a new middle school in 1997, built a new elementary school in 2008, and is currently constructing a new high school that will open in 2015. The middle school will begin a substantial remodel in 2015. These new buildings and upgrades will provide adequate school facilities for several years.

PARKLAND DEDICATION

In order to provide for adequate public open space and park land for the benefit of the quality of life of the residents of the city, all new development shall dedicate or otherwise arrange for the provision of park land and recreation facilities necessary to serve their development. Specific dedication requirements are established in the city's Subdivision Regulations.

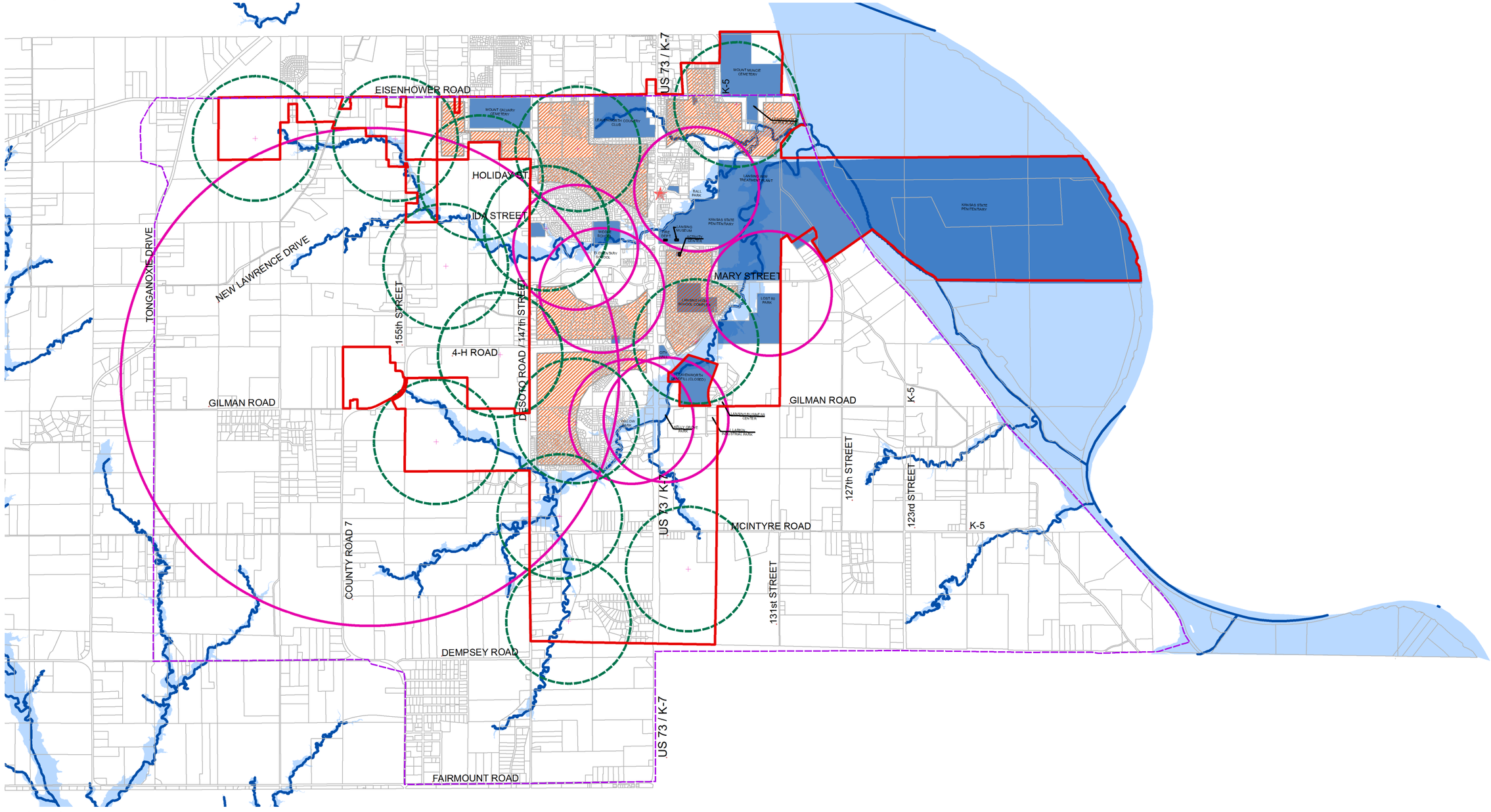
ADEQUATE PUBLIC INFRASTRUCTURE

In order to promote the safe and orderly development of the city, property developers are responsible for the costs of all public infrastructure extensions and installations necessary to serve their new development. No proposed development project shall be permitted that exceeds the capacity of the existing public infrastructure. All new developments should be served by and have access to paved streets and should not be served solely by gravel roads. Specific regulations and design standards are established in the city's Subdivision Regulations.

SANITARY SEWER

In order to provide sanitary sewer service to new development, the existing sewer collection system and wastewater treatment plant capacity needs to be tracked and monitored. A Sanitary Sewer Master Plan is being developed (2014) and is included herein by reference. This master plan should be periodically reviewed and updated.

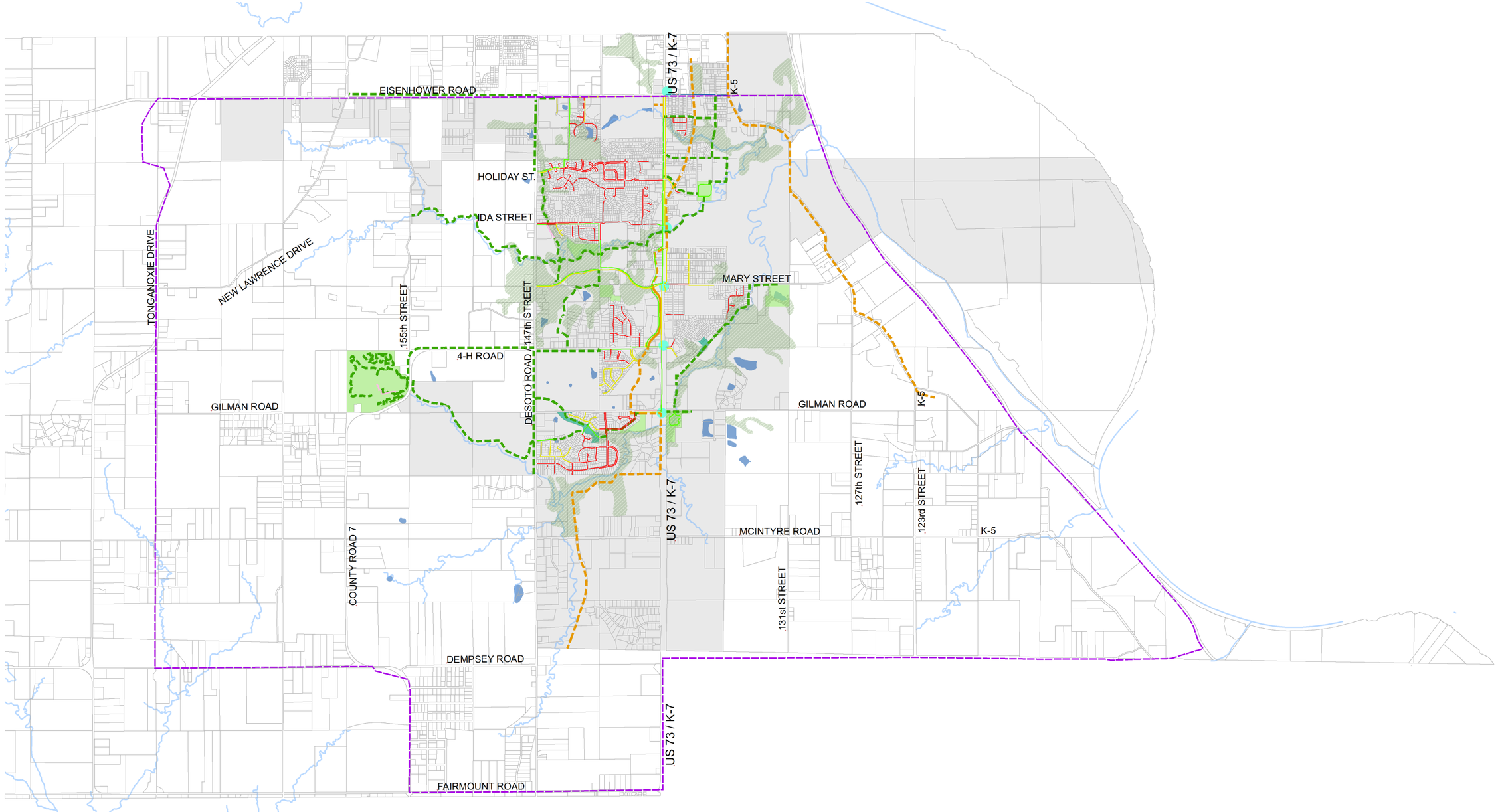
MAP 8 | COMMUNITY FACILITIES MAP



LEGEND

- URBAN GROWTH MANAGEMENT AREA
- CITY LIMITS
- COUNTY PARCEL
- TRAIN DEPOT
- PUBLIC FACILITIES
- CURRENT PARK
- FUTURE NEIGHBORHOOD PARK
- NEIGHBORHOOD PARK SERVICE AREA
- CURRENT PARK SERVICE AREA
- FUTURE PARK SERVICE AREA
- STREAMS
- FLOODPLAIN

MAP 9 | TRAILS SYSTEM MASTER PLAN



LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *STREAMS*
- *WATER BODIES*
- *TREE CANOPY*
- *CURRENT PARK*
- *FUTURE PARK*
- *PEDESTRIAN CROSSING*
- *EXISTING SIDEWALK (4 FEET WIDE)*
- *EXISTING SIDEWALK (5 FEET WIDE)*
- *EXISTING SIDEWALK (6 FEET WIDE)*
- *EXISTING TRAIL CORRIDOR (8 FEET WIDE)*
- *EXISTING TRAIL CORRIDOR (9 FEET)*
- *EXISTING TRAIL CORRIDOR (10 FEET)*
- *EXISTING METROGREEN CORRIDOR*
- *PROPOSED METROGREEN CORRIDOR*
- *PROPOSED TRAIL CORRIDOR*

NOTE: PROPOSED TRAIL ROUTE LOCATIONS ARE NOT FINAL AND ARE CONCEPTUALLY SHOWN TO CONVEY THE NEED FOR TRAIL CONNECTIVITY AT ULTIMATE BUILD OUT.

PARKS AND RECREATION

VISION

A PARKS, RECREATION, AND GREENWAY SYSTEM THAT STIMULATES THE PHYSICAL AND MENTAL WELL-BEING OF ALL PEOPLE IN THE LANSING AREA AND ENHANCES THE SENSE OF COMMUNITY IDENTITY, SPIRIT AND PRIDE.

GOALS AND RECOMMENDATIONS

GOAL: ESTABLISH A COOPERATIVE, MUTUALLY SUPPORTIVE WORKING RELATIONSHIP BETWEEN RESIDENTS, SCHOOL DISTRICT, AND CITY GOVERNMENT THAT IMPROVES THE QUALITY OF LIFE AND MAXIMIZES THE EFFICIENT USE OF AVAILABLE LAND AND RESOURCES.

- Continue to recruit and use volunteers to defray the costs of operation and maintenance.
- Continue to monitor facilities to ensure they are being used efficiently and kept well maintained.
- Form a joint committee to identify facilities appropriate for joint use and to review/develop policies for joint use of those facilities.

GOAL: PROVIDE A WIDE VARIETY OF RECREATIONAL SPORTS AND LEISURE ACTIVITIES THAT WILL ALLOW RESIDENTS AND VISITORS TO DEVELOP PERSONAL CHARACTER, SPORTSMANSHIP AND MOST IMPORTANTLY, HAVE FUN.

- Develop a Sports Facility Master Plan that provides for adequate soccer, softball, baseball and football fields throughout the community.

GOAL: DESIGN AND IMPLEMENT A NETWORK OF PARKS AND GREEN SPACE WITH LOCATIONS THAT ACCOMMODATE IMMEDIATE NEEDS AND FUTURE GROWTH.

- Design and develop a central gathering area in conjunction with a new civic/community center in the Towne Center along Main Street.
- Revise existing regulations or develop new regulations that provide for adequate children's playgrounds on the neighborhood level (one within each square mile area).
- Sites for neighborhood parks (including children's playgrounds) should be purchased where not currently available in existing areas (as designated on the Community Facilities Map).
- New developments should designate quality land for neighborhood parks (minimum of one centrally located within each one square mile area).
- Develop a strategy for ensuring adequate parks and recreation facilities that are available as the city expands to the south and west.
- Identify and develop a plan of improvements that should be made to Bernard Park over the next 15 years, including a major sports complex and other active uses.

GOAL: DESIGN AND CONSTRUCT AN ATTRACTIVE GREENWAY SYSTEM THAT LINKS RECREATIONAL FACILITIES, RESIDENTIAL NEIGHBORHOODS AND COMMERCIAL ESTABLISHMENTS WITH TRAILS AND SIDEWALKS THAT PROMOTE A SENSE OF COMMUNITY.

- Provide large fields for open play/use as practice fields should be provided within the greenway system.
- Protect valuable natural resources by recovering and improving land in existing developed areas and by enhancing easements set aside in newly developed areas.
- Proposed land acquisition and/or easement acquisition may need to be considered in existing developed areas. The city's established procedures for project planning and for acquisition of property interests, including notifications, public input opportunities, publication when required, and all related legislative deliberations and actions at advertised open meetings, should be followed in the process of considering locating trails in existing neighborhoods, except when they are to be located in existing street rights-of-way.

  Construction of proposed trails across private property where new easements will be required should only be pursued when one of the following occurs:

  - Development of property where a proposed trail corridor is shown occurs.
  - A valid petition from the owners of property in the neighborhood affected by a proposed trail is confirmed.
  - An infrastructure project such as a street across property where a proposed trail corridor is shown occurs.
  - Funding becomes available to extend an existing trail across property where a proposed trail corridor is shown.

  Any further limitation closes the door on options that the community should have available to them.
- Develop an interconnected trail system that accommodates pedestrians and bicyclist on publicly owned greenways and on privately owned greenway easements, as per the city's adopted Trails System Master Plan.
- Ensure that all major greenway systems appropriately accommodate bicycles and pedestrians.
- Connect bicycle and pedestrian trails with the local street system.
- Design safe bicycle and pedestrian crossings at intersections of the trail system and streets.
- Bicycle storage facilities should be located at key areas (commercial, public facilities, ball fields).
- Public facilities should be linked into the trail system.
- Review the content and implementation of Article 5, Park Land Acquisition and Dedication, of the Subdivision Regulations to determine if the land dedicated or funds generated under this ordinance are sufficient to support recreational needs created by growth and new development and allow fees and payments in lieu of park land dedication to be used for trails/greenway improvements within the city.

GOAL: DESIGN A PLAN TO PROVIDE A WATER RECREATIONAL FACILITY THAT SATISFIES THE NEEDS OF THE COMMUNITY AND DESIRES OF THE RESIDENTS.

- Develop a concept for an outdoor facility that supplies currently available design and technology to support a diverse user base. Conduct a cost benefit analysis. This could be accomplished with a comprehensive master plan for the Kenneth W. Bernard Community Park. Develop a solid agreement between the city and the School District for community use of pools and athletic facilities.

IMPLEMENTATION STRATEGY FOR PARKS AND RECREATION

Action statements have been updated to reflect the goals prepared by working groups of citizens. These are essential to successful execution of the plan. Some of the tasks identified in the action statements have been executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Parks and Recreation Action Statements are provided below.

PRIORITIZED IN SEQUENCE (SOME ONGOING SIMULTANEOUSLY)

- Develop a plan for open space and aesthetic enhancements (green space, landscaping, enhanced pedestrian walkways and other pedestrian elements, bike paths, enhancement to bridge architecture, public art) along Main Street to be incorporated in conjunction with the existing Main Street System Enhancement Proposal and in cooperation with an overall Main Street Redevelopment/Development Strategy. (Completed Neighborhood Revitalization, MSOD, Master Trails Plan)
- Continue to develop the Parks and Recreation Department and investigate and determine which functions and facilities should be part of that department. Examine the functions and composition of the Parks and Recreation Board as part of this effort.
- Explore grants, levies, assessments, etc., to fund park and greenway acquisition, design, and construction. (grant applications are submitted annually)
- Further develop and implement a plan for acquisition, design, and construction of a city-wide trail system for pedestrians and bicyclists that connects all residential subdivisions, commercial services, and park facilities throughout the Lansing area of interest. This would include development of linear trail systems along the Seven and Nine Mile Creeks in conjunction with storm water improvement projects. (Occurs through development, Stream Buffer Ordinance)
- Assemble a committee to study the concept of a community pool to determine the types of users, type of facility, and the possibility of a joint city/school project. (Completed – Citizens Committee currently doing several studies)
- Continue to develop a plan and implementation proposal for athletic fields on the school district property south of the Middle School in a joint school-city project and/or on other properties. (Proposals have been made)
- Form a committee to assess the need for a major sports complex and determine the size and location of sports fields, and other sports facilities needed at this complex.

COMMUNITY & ACTIVITY CENTERS/ LIBRARY / EDUCATION

VISION

A VARIETY OF HIGH QUALITY COMMUNITY FACILITIES AND ACTIVITIES, LIBRARY SERVICES AND EDUCATIONAL OPPORTUNITIES THAT SATISFY THE QUALITY OF LIFE REQUIREMENTS OF A GROWING, DYNAMIC COMMUNITY IN A CENTRALIZED LOCATION.

GOALS AND RECOMMENDATIONS

GOAL: COORDINATE AND CENTRALIZE COMMUNITY FACILITIES IN ORDER TO SUPPORT A VARIETY OF ACTIVITIES, COMMUNITY SERVICES, AND PERSONAL LEISURE AND GROWTH PROGRAMS (INCLUDES COMMUNITY CENTER, ACTIVITIES CENTER, SCHOOL FACILITIES, ETC).

- Cost benefit analysis should be conducted on existing facilities to determine efficiency of use.
- Explore funding through mill levies, user fees, grants, and donations.
- Centrally located facilities should be developed as necessary to meet growing needs of the community.
- Explore construction of a new civic/community center as a focal point of the mixed-use Towne Center site that incorporates and expands activities in the current Community Center that would also provide outdoor gathering area for festivals, holiday events and everyday use and compare to other potential sites.
- Re-evaluate uses of the current Community Center in northeast and revitalize/adapt it for relevant uses attractive to the community (adult education, arts, etc.).

GOAL: PROVIDE FACILITIES FOR ACTIVITIES THAT STIMULATE PARTICIPATION BY RESIDENTS OF LANSING AND THE SURROUNDING AREA AND ENHANCE THE QUALITY OF LIFE FOR ALL GROUPS.

- A small committee should be convened to program and market social, hobby, and growth activities.
- Successful programs in other similar sized communities should be examined and duplicated as warranted.

GOAL: CONTINUE TO PURSUE ACCREDITATION FOR THE LIBRARY CONSISTENT WITH THE REQUIREMENTS AND DESIRES OF THE ENTIRE LANSING COMMUNITY.

- The library should be adequately maintained and staffed, and a strategy should be developed to attain full accreditation (establishing library board authority) with the Northeast Kansas Library System in order to fulfill its mission.

GOAL: ESTABLISH AND MAINTAIN A COOPERATIVE, MUTUALLY SUPPORTIVE WORKING RELATIONSHIP BETWEEN RESIDENTS, THE SURROUNDING COMMUNITY, SCHOOL DISTRICT, AND CITY GOVERNMENT THAT MAXIMIZES THE EFFICIENT USE OF AVAILABLE FACILITIES AND RESOURCES.

- The School District and City of Lansing facilities should be equally considered in a development of an integrated, efficient facility use program.
- A community wide facility use program should be regularly updated to meet the demands of the community.
- Volunteers should be utilized to defray the costs of operation and maintenance.

IMPLEMENTATION STRATEGY FOR COMMUNITY & ACTIVITY CENTERS/LIBRARY/ EDUCATION

Action statements have been updated to reflect the goals reviewed and prepared by work groups of citizens. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next couple of years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Community and Activity Centers Action Statements are provided below:

- Conduct a community survey and an analysis of the current use of the Activities Center to determine the appropriateness of the services provided, the adequacy of the facility, and the economic vitality of the operation.
- Determine which services might be transferred to a new center and which ones still need to serve the existing neighborhood. Determine the requirements for maintaining the current facility as a viable community asset and construction and operating cost estimates for a new facility in the Towne Center.
- Continue to maintain and improve a vibrant library facility for the Lansing Community. Determine potential sources of funding and assess the feasibility of joint programs and resources with USD 469.
- Expand the spirit of cooperation between elected city officials and the elected school board to promote integrated planning, joint use of facilities, and to foster the spirit of one community.
- Assess the need for and types of education and enrichment programs including those for adults and seniors.
- Create an integrated, long-range community service plan that addresses multiple sites and venues with specialty locations and a coordinated program between multiple buildings.
- Assess the need for a community auditorium for community theater productions, concerts, and other activities in conjunction with USD 469.
- Continue/increase support for the Lansing Historical Museum.

PUBLIC SAFETY AND UTILITIES

VISION

A CONTINUOUSLY IMPROVING PLAN AND PROGRAM FOR THE MAINTENANCE OF FIRE, POLICE AND UTILITIES SERVICES REQUIRED TO ENHANCE THE DEVELOPMENT OF A GROWING, VIBRANT COMMUNITY AND TO ENSURE THE WELLBEING OF ALL CITIZENS.

GOALS AND RECOMMENDATIONS

GOAL: DEVELOP A LONG-TERM STRATEGY FOR THE SYSTEMATIC DEVELOPMENT AND MANAGEMENT OF ENHANCED FIRE PROTECTION SERVICES FOR THE LANSING COMMUNITY.

- A detailed proposal should be prepared that recommends a strategy for expansion of the fire protection services to meet all desired growth and to continually improve levels of service and response times.

GOAL: DEVELOP A COMPREHENSIVE PLAN AND PROGRAM FOR EXPANSION OF POLICE SERVICES AND FACILITIES CONSISTENT WITH THE GROWTH OF THE COMMUNITY.

- Pursue ongoing phased public safety facilities and personnel to accommodate all desired growth.
- Determine cost-benefit of an investigative division.

GOAL: ESTABLISH CLEAR STANDARDS AND GUIDELINES FOR THE PLACEMENT AND REPLACEMENT OF MULTIPLE UTILITIES TO ENHANCE FUNCTIONALITY WHILE ADDING TO THE ATTRACTIVENESS OF NEIGHBORHOODS.

- Underground utility location standards should accommodate street trees within right-of-way.
- Overhead utilities should be buried when possible or relocated to minimize the negative impact on property values throughout the community.
- Initiate discussions with electric, phone, and telecable companies to undertake a utility burial program in the existing developed areas of Lansing and develop regulations requiring all new facilities be underground when feasible.
- Looped water mains and adequate service lines should be provided to all areas of the city.

GOAL: DEVELOP AND MAINTAIN A COMPREHENSIVE PROGRAM FOR MANAGEMENT OF STORM WATER RUNOFF AND COLLECTION SYSTEMS.

- A storm water utility study should be conducted to determine the impact of projected future development (as defined by densities in this plan and according to actual development) on existing developed areas of the city.
- A storm water utility system should be implemented in the city. A Storm Water Master Plan is necessary for a viable storm water utility.

GOAL: PROMOTE AN ORDERLY EXPANSION OF WASTEWATER TREATMENT AND STORM WATER MANAGEMENT CAPABILITIES CONSISTENT WITH THE GROWTH OF THE COMMUNITY.

- Restrict the use of septic tank systems and encourage the conversion of areas with antiquated systems.
- Pursue ongoing phased wastewater treatment facilities (including interceptors) to accommodate all desired growth.

IMPLEMENTATION STRATEGY FOR PUBLIC SAFETY AND UTILITIES

Action statements have been updated to reflect the goals prepared by work groups of citizens. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next couple of years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Public Safety and Utilities Action Statements are provided below.

HIGH PRIORITY ACTIONS

- Continue to improve and maintain quality police services.
- Develop a Comprehensive Plan for delivery of fire, police, water, storm sewer, and sanitary sewer in conjunction with and to determine impact on future annexation areas. (Engineering Consultant may be required)
- Determine future public fire and safety requirements, including facilities, equipment and personnel needed to meet the demands as Lansing continues to expand and grow.
- Continue to expand the wastewater infrastructure (interceptors) to serve the remaining internal areas and to provide collection services to the projected growth areas. (Engineering Consultant may be required)
- Continue to develop and implement a plan to expand the capacity of the wastewater treatment system and to meet KDHE requirements.
- Determine the desirability of establishing a storm water utility. **(This should be a top priority as it will create a funding source for storm water improvements)**
- Conduct an analysis to determine the coordination, timing, and funding needs as well as an equitable means of assessment to cover funding requirements of converting from a volunteer fire department to a full-time paid fire department. (Completed when Fire District One was formed)

MEDIUM PRIORITY ACTIONS

- Analyze the entire Lansing area of interest to identify future fire facility locations that will best serve a growing community.
- Continue the ongoing assessment of the flood plain and do a study to determine needs to complete a storm water improvement plan. This plan should incorporate the development of a computer model that will allow detailed analyses of potential impacts on the storm water drainage basin of proposed development actions. (Stream Buffer Ordinance)
- Prepare an action plan that defines what developers are required to do and provides for a community-wide storm water management system that incorporates gutters, sewers, retention ponds, and well maintained natural drainage creeks. (Consultant finding required)

05
FUTURE GROWTH

This plan is predicated upon the strong conviction that the City of Lansing and the surrounding community will continue to grow and that, given economic and population projections, that growth will likely occur at a steady and manageable pace. In order to achieve the overall vision outlined for the city, this section of the Comprehensive Plan outlines an approach for managing the growth anticipated along the Main Street corridor (including new development, redevelopment, and revitalization) and areas adjacent to Lansing that should be considered for annexation (including planning/zoning outside of the existing city limits) within the Urban Growth Management Area as defined by Leavenworth County. The future growth areas, vision statements, goals, and recommendations are outlined for the Main Street Corridor on pages 71-73 and for annexation on pages 79-81. It is imperative that the city leaders consider all new development within these areas in a manner consistent with the maps, vision, goals, and recommendations outlined in this section.

GENERAL INFORMATION

The Comprehensive Plan committees identified a need for significant proactive pursuit of future growth and proper management of that growth. The quality and type of this future growth will be a defining factor in the image and quality of life of the City of Lansing. There exists an ongoing need to enhance and improve the older existing areas of the city, while simultaneously planning for high quality new development. It is recognized that comprehensive improvement plans and programs are necessary to accomplish the goals of this section. Because of the nature of much of the future growth in Lansing, these comprehensive improvement plans require public/private partnerships. The City will have to work diligently to secure grants and negotiate successful public/private partnerships in order to secure and support future development proposals. Additionally, many opportunities and constraints that exist within these future growth areas should be considered during the planning stage. Information regarding applicable grants, statutes, and opportunities and constraints is provided on the following pages. Specific information regarding the future growth areas is provided in the Main Street/Towne Center, Neighborhood Revitalization, and Annexation portions of this section.

MAIN STREET

VISION

MAIN STREET WILL BE THE HEART OF OUR COMMUNITY, PROVIDING ENHANCED SHOPPING AREAS AND ATTRACTIVE PLACES TO LIVE AND WORK. MAIN STREET TOWNE CENTER WILL BE A MIXED USE, PEDESTRIAN ORIENTED NEIGHBORHOOD WITH AMENITIES THAT WILL CREATE A NEW CIVIC CENTER AND GATHERING AREA FOR LANSING.

The vision, goals and policies contained below serve as guidelines for making decisions concerning future development in the Lansing community. These vision statements define a long-range image for the community. The goals articulate the ideas necessary to achieve the vision for the community. Finally, the recommendations provide suggested policies and actions to enable the community to achieve the goals.

GOALS AND RECOMMENDATIONS

GOAL: ESTABLISH AND PROMOTE A SAFE AND ATTRACTIVE MAIN STREET CORRIDOR THAT INCORPORATES AESTHETIC ELEMENTS THAT HELP TO STRENGTHEN EXISTING BUSINESS AND ATTRACT HIGH QUALITY NEW BUSINESSES.

- Very high quality Main Street enhancements should be designed and funded in the public realm to establish high standards for adjacent private land uses.
- Any future enhancements to the road should introduce traffic calming measures to create safe opportunities for pedestrians to cross from neighborhoods to Towne Center.
- Unique and identifiable gateway elements should be installed at city limits on the north and south ends of Main Street to reinforce a sense of arrival and clearly convey the desired Lansing image.
- Protect and enhance property values through design guidelines that demand high quality.
- Assist existing businesses in determining improvements necessary for enhancement and increased marketability, including private improvements through a grant program (facade improvements) or public improvements to help businesses.

GOAL: ESTABLISH AND MAINTAIN A VISUALLY APPEALING MAIN STREET CORRIDOR THAT IS CHARACTERIZED BY CONSISTENT THEMES IN LIGHTING, LANDSCAPING, SIGNAGE, AND BUILDING APPEARANCE AND INCORPORATES CONNECTING PEDESTRIAN FACILITIES.

- Develop a utility burial program with the assistance of the private utility companies.
- Continue to enforce the signage standards outlined in the Main Street Overlay District and periodically review and update those standards to keep pace with new technologies and advertising practices.
- Open space, landscape and public art should be included in future roadway enhancements.
- Funding for enhancements south of Gilman Road should be pursued.

GOAL: IMPROVE PEDESTRIAN CONNECTIVITY AND INSTALL IMPROVEMENTS TO ALLOW SAFER PEDESTRIAN ACCESS BETWEEN BOTH THE EAST AND WEST SIDES OF MAIN STREET.

- Develop greenways with connections on each side of Main Street.
- Create pedestrian and bicycle access at the Seven Mile Creek bridge.
- Physically and visually denote major pedestrian and bicycle crossings with landscape and architectural elements.
- High quality pedestrian walkways and bicycle paths should be included in all future roadway improvement projects.

GOAL: DEVELOP A UNIFIED, VIBRANT, INTERCONNECTED AND AESTHETICALLY PLEASING MAIN STREET STRATEGY WHICH INCORPORATES AN APPROPRIATE MIX OF RETAIL, ENTERTAINMENT, RESIDENTIAL, OFFICE, AND GOVERNMENTAL FACILITIES.

- Aesthetic enhancements to Main Street should include improvements that physically distinguish Lansing from the surrounding areas. This may include the introduction of attractive landscape, lighting and public art at Eisenhower Road, 4-H Road or Gilman Road, and ultimately at Fairmont Road (the future southern boundary of the city).
- Incorporate an iconic architectural element at the north and south entries to Lansing to establish an attractive and memorable image.
- The city should enhance the aesthetics of public facilities along Main Street to Complement enhancements on private properties and along the roadway.

GOAL: INITIATE AND MAINTAIN THE NECESSARY COMMITMENT AND COOPERATION AMONG ALL GOVERNING BODIES TO AGGRESSIVELY PURSUE DEVELOPMENT AND REVITALIZATION CONSISTENT WITH THE CITY'S VISION TO HAVE AN ATTRACTIVE, FUNCTIONAL, AND ECONOMICALLY VIABLE MAIN STREET PROGRAM.

- Develop public/private partnerships to implement this plan.
- Public improvements and incentives should be used to accelerate development within priority development areas (preferable to avoid piecemeal development). Funding options may include TIF revenues.
- A Main Street Revitalization Corporation should be pursued to work with the city in implementing this plan.

GOAL: DEVELOP A PLAN AND SEEK OUT QUALIFIED DEVELOPERS TO BUILD AN ATTRACTIVE MIXED-USE DEVELOPMENT ON THE TOWNE CENTER SITE THAT INCLUDES AN APPROPRIATE MIX OF RESIDENTIAL, RETAIL, ENTERTAINMENT, RECREATIONAL, HOSPITALITY AND SERVICE FACILITIES.

- The mixed use concept on this site will be essential to development of an attractive, energized and functional city center.
- This site should be used to establish a central community gathering space.
- The Towne Center development should include an attractive, high quality outdoor gather space. Ideally this space should be privately funded as part of the development of the center, but may require public funds, such as TIF revenues.
- Identify a specific program of uses (such as theaters, professional offices, grocery, department stores, restaurants, etc.) that are desirable as part of the development of this area and conduct a market analysis to determine incentives necessary for feasible development of the site.

MAIN STREET IMPROVEMENT AREAS

Main Street Corridor (as outlined on Map 10) is the primary commercial corridor within the city and should be improved in a coordinated fashion to reflect the desired image outlined in this plan. Incentives for development, redevelopment, and revitalization should be provided, when necessary, to accomplish the goals of the plan. This may include a number of incentive programs that are available at the state and local level. This plan should be used to guide city leaders when considering the application of incentives to future projects. The following Action Statements have been developed as an essential tool to guide successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Main Street Action Statements are provided on the following page.

IMPLEMENTATION STRATEGY

Redevelopment requires private investment, public investment, and public incentives. The Main Street Enhancement project has served as a catalyst for private investment. The City will need to assist in the redevelopment efforts by developing plans that resolve some of the architectural, site, and circulation problems of existing businesses in conformance with the Main Street Overlay District. Land assembly may be required to resolve some of the problems associated with inadequate parcel size. Additionally, economic development strategies that eliminate the impediments to attracting high quality developers and businesses should be prepared.

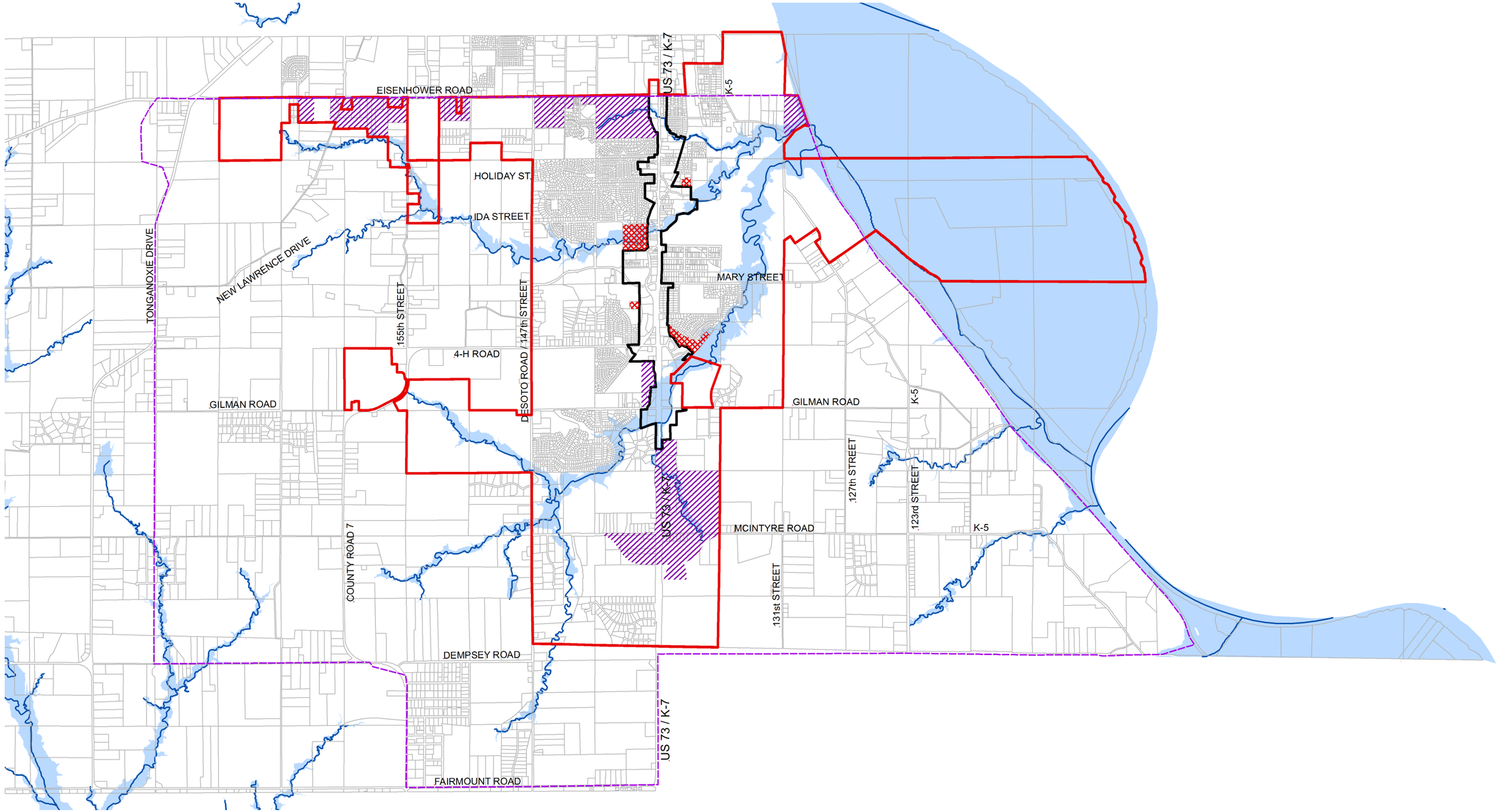
HIGH PRIORITY ACTIONS

- Prepare an overall Main Street Development Strategy (including revitalization of existing areas and development of new areas around a central theme).
- Utilizing the Market Analysis provided with this plan, develop a comprehensive economic development strategy for the Main Street Corridor that is complementary with Eisenhower Road and other commercial areas.
- Identify, aggressively pursue, and implement economic development and revitalization funding as a part of the above economic development strategy.
- Enlist help of business owners to develop and implement the Main Street Enhancement Plan.

MEDIUM PRIORITY ACTIONS

- Develop a Main Street Enhancement Plan that provides for landscaping, pedestrian oriented accommodations and gateway identity improvements at the north and south entries to Lansing.
- Identify and pursue funding to implement proposed Main Street enhancements.
- Continue to employ the Main Street Overlay District standards for properties along Main Street that are consistent with the desired image identified in this plan and by the citizens of Lansing.
- Develop a comprehensive development concept (including specific identification of desired uses, conceptual design, and feasibility) desired for the Main Street Towne Center site.

MAP 10 | MAIN STREET CORRIDOR MAP



LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *PROPOSED MAIN STREET OVERLAY DISTRICT (MSOD) BOUNDARY*
- *PROPOSED EXPANSION OF MSOD*
- *PROPOSED REMOVAL OF MSOD*
- *STREAMS*
- *FLOODPLAIN*

NEIGHBORHOOD REVITALIZATION

VISION

ESTABLISHED RESIDENTIAL AND COMMERCIAL DISTRICTS THAT HAVE THE QUALITY FEATURES (FACILITIES, SERVICES, AESTHETICS, STRUCTURAL QUALITY, ACTIVITIES) REQUIRED TO RETAIN EXISTING RESIDENTS AND TO ATTRACT NEW RESIDENTS.

GOALS AND RECOMMENDATIONS

GOAL: RETAIN AND ENHANCE THE QUALITIES THAT MAKE EXISTING RESIDENTIAL AND COMMERCIAL DISTRICTS UNIQUE WITH DESIRABLE CHARACTERISTICS WHILE UPGRADING FACILITIES AND SERVICES IN OLDER NEIGHBORHOODS TO MEET CURRENT STANDARDS.

- Protect and enhance property values through design guidelines that demand high quality. Capitalize on the architectural value of the housing south of the Prison by developing architectural guidelines to restore the key elements of the Folk Housing style in the area.
- Promote Eisenhower Road as an important commercial corridor and develop architecture and development standards, similar to the Main Street Overlay District, to apply to future development along Eisenhower Road.
- Capitalize on available green space in older areas to develop neighborhood parks and trails for connection to other areas of the community.
- Create demonstration block improvement programs that target funds for streets, curb and gutter, sidewalks, utilities, and housing on individual blocks.
- Do not permit the conversion of single family structures for multi-family or commercial use.
- Develop a rental licensing and inspection program.
- Provide assistance programs (both non-income based and income based) for neighborhood revitalization and employ housing and property maintenance code enforcement on properties that devalue the neighborhood.
- Include (within the housing and property maintenance codes) more specific provisions for peeling paint, parking areas, and rotting wood on structures and add provisions that require glass and screens in all window openings.

GOAL: PROMOTE THE SENSE OF COMMUNITY WITHIN OLDER NEIGHBORHOODS AND DISTRICTS.

- Assist in the development of neighborhood organizations as part of the revitalization program.
- Implement the neighborhood park concept with children's play areas as a part of each revitalization program and implement neighborhood provided park maintenance partnership programs.

GOAL: DEVELOP GENERAL CONSENSUS AND SUPPORT FOR NEIGHBORHOOD REVITALIZATION GOALS AND OBJECTIVES.

- Conduct meetings with property owners to educate them on the benefits and process.
- Conduct public hearings as a part of each grant application process to increase awareness of the benefits of the grants.

GOAL: MAXIMIZE THE USE OF AVAILABLE GRANT PROGRAMS, FEDERAL AND STATE ASSISTANCE PROGRAMS, AND COOPERATING DEVELOPERS/INVESTORS TO FUND REVITALIZATION EFFORTS.

- Periodically review and expand Neighborhood Revitalization areas, as authorized by Kansas Statute, to implement non-income based assistance programs.
- Target City funding to demonstration blocks (with comprehensive improvements) within the revitalization areas.
- Conduct surveys of revitalization areas to determine small areas that qualify for Community Development Block Grant funds.
- Apply for Community Development Block Grants for street, curb and gutter, sewer, and water improvements within certain qualifying areas.
- Apply for Community Development Block Grants for owner occupied housing improvements within certain qualifying areas.
- Pursue funding from charitable foundations to assist in implementing revitalization.

GOAL: MAXIMIZE THE USE OF AVAILABLE GRANT PROGRAMS TO CARRY OUT PUBLIC INFRASTRUCTURE IMPROVEMENTS IN OLDER AREAS.

- Leverage City funds to obtain state and federal matching grants for streets and sewers.
- Pursue federal grants for construction of storm shelters in older neighborhoods.
- Pursue FEMA funding when available for location action elements of regional mitigation plan.
- Review and expand existing improvement districts and establish new improvement districts where appropriate to provide funding for infrastructure projects.

NEIGHBORHOOD REVITALIZATION AREAS

COMPREHENSIVE NEIGHBORHOOD REVITALIZATION PLANS

Revitalization requires commitment by a city to infuse public funds and incentives. Since there are not enough public funds to do all of the improvements to streets, utilities, sidewalks, etc., the City should focus funds into demonstration projects where all street deficiencies in a particular block are corrected and housing improvements are targeted. The incentives should be used to encourage private investment, an essential part of revitalization. Therefore programs that attract investors of all income levels should also be a part of the plan. Finally, related leisure facilities (parks) and retail services that support a neighborhood should be upgraded to meet the demands of the market. Map 11 shows neighborhood revitalization areas within Lansing city limits and is periodically updated to reflect the neighborhood(s) currently in the revitalization program.

EAST EISENHOWER ROAD NEIGHBORHOOD

This area of the city has a wide range of existing housing including older single family, more recently constructed multi-family (generally within the last forty years), and mobile home units. Because of the diverse and incongruent nature of the development in this area, a detailed revitalization plan that designates areas for redevelopment, areas for revitalization, neighborhood park locations, street realignments, and architectural and site improvement guidelines should be prepared prior to implementation of revitalization. Neighborhood input should be solicited to assist in decision making about these elements.

EAST KANSAS AVENUE/EAST MARY STREET NEIGHBORHOOD

This area offers the greatest potential for significant traditional neighborhood revitalization as envisioned by the committee. Most of the area has a consistent, unique architectural style (Folk Housing Architecture). Architectural and landscape guidelines, once prepared, could assist existing owners with improvements to enhance the street appeal in the area. Targeted demonstration block projects (street, sidewalk, curb and gutter, utility, and housing) should be included in the revitalization program for this area. A neighborhood park area should be identified and developed by the City. The City should aggressively pursue all available funding programs to preserve and revitalization the older neighborhoods in Lansing.

LANSING CITY PARK NEIGHBORHOOD

This area includes a range of uses that could complement each other given certain improvements. The Neighborhood Revitalization Act should be used as incentive for improvements in this area. The industrial and public uses on each side of American Avenue can continue to serve the needs of the community in their current locations. Private funds, public funds and incentives should be used to accomplish screening, landscape, street tree, and sidewalk improvements to enhance the pedestrian environment along American Avenue. Improvements to the city maintenance site should be done as a part of the enhancement of this area or the city maintenance facility relocated to a larger and more ideal location and the current site re-developed. Lansing City Park should be improved to emphasize pedestrian and bicycle access and minimize vehicular impact. The area designated for multi-family should be developed as an integrated multi-family development with improvements to existing structures and additional structures on the vacant and redevelopment parcels. The city should assist in revitalization by preparing a development concept and enhancement guidelines for the multi-family area. Incentives should then be used to attract developers. Finally, guidelines for structures, landscape, street, and sidewalk improvements should be prepared for the existing mobile home park. Street improvements should include reopening access to American Avenue. Incentives for these improvements should be provided.

IMPLEMENTATION STRATEGY

The following Action Statements have been developed as an essential tool to guide successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Neighborhood Revitalization Action Statements are provided below.

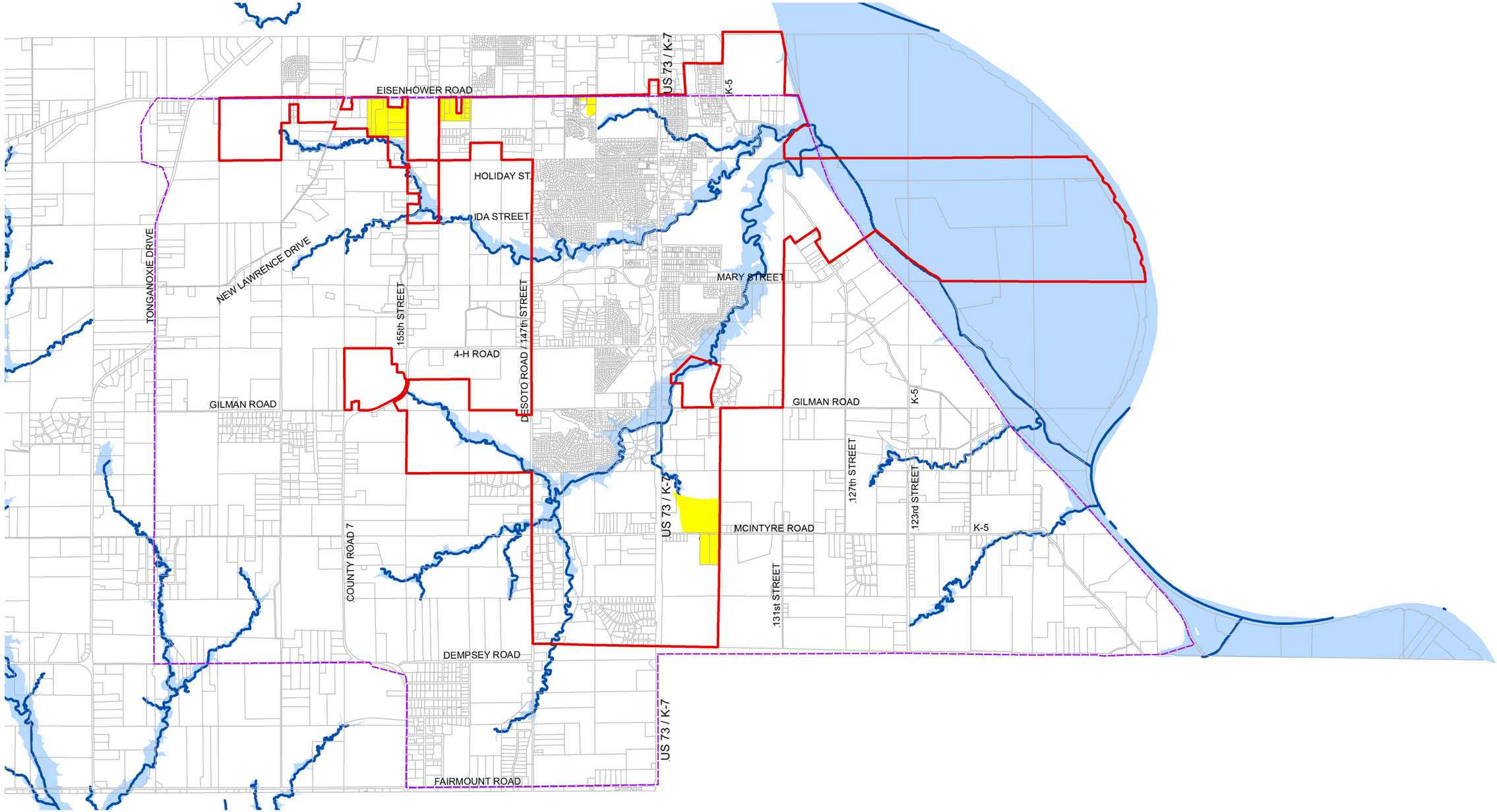
HIGH PRIORITY ACTIONS

- Continue to identify and inventory commercial/industrial areas, residential neighborhoods, natural areas and public facilities/services/utilities appropriate for revitalization (accomplished with approval of this plan).
- Review, update and enforce standards for housing rehabilitation and infrastructure improvements in older existing neighborhoods.
- Create assistance programs for elderly and affordable households.

MEDIUM PRIORITY ACTIONS

- Identify and aggressively pursue funding sources for revitalization efforts.
- Develop and execute a consensus building process within the residential neighborhood and commercial revitalization areas (neighborhood action groups).
- Develop neighborhood revitalization strategies that take an integrated approach to housing rehabilitation, infrastructure improvements, and community involvement.
- Investigate a rental inspection and licensing program.
- Implement a neighborhood assistance program with neighborhood boundaries defined by special characteristics of the neighborhood and assistance provided based on housing and infrastructure needs.
- Review the existing property maintenance code for enforceability and appropriateness and determine the need for systematic code enforcement. Investigate a rental inspection and licensing program.
- Develop commercial/industrial redevelopment strategies to improve marketability of the commercial/industrial developments.
- Pursue funding for improvements to natural areas and public facilities.

MAP 11 | NEIGHBORHOOD REVITALIZATION MAP



LEGEND

- *URBAN GROWTH MANAGEMENT AREA*
- *CITY LIMITS*
- *COUNTY PARCEL*
- *NEW REVITALIZATION AREAS WITHIN CITY LIMITS*
- *STREAMS*
- *FLOODPLAIN*

ANNEXATION

VISION

A SYSTEMATIC AND APPROPRIATE STRATEGY FOR THE ANNEXATION AND CONTROL OF COMMERCIAL AND RESIDENTIAL DEVELOPMENT WITHIN THE CITY'S AREA OF INFLUENCE, THE URBAN GROWTH MANAGEMENT AREA, AS DEFINED IN THE LEAVENWORTH COUNTY COMPREHENSIVE PLAN.

GOALS AND RECOMMENDATIONS

GOAL: DEVELOP A LONG TERM STRATEGY FOR SYSTEMATIC ANNEXATION BASED ON THE NEED TO CONTROL THE SEVEN AND NINE MILE CREEK WATERSHEDS AND TO CONTROL DEVELOPMENT ALONG MAIN STREET (HWY 7/73).

- Educate land owners on the benefits of planned, contiguous growth and the limitations imposed on unincorporated areas for future infrastructure needs and development potential.
- City of Lansing should deny extension of utility service beyond the city limits.
- When opportunities arise to annex, within the parameters of current annexation legislation, the City Council should proceed.
- Annexation within different Annexation Areas (as described below) can occur concurrently, as appropriate.
- Avoid piecemeal development pattern, encourage contiguous development and annexation.
- Sewer interceptor lines should be extended as annexation occurs.
- Service delivery plans should explicitly outline the benefits of annexation to future residents.
- Water mains should be upgraded and looped and fire hydrants provided as development occurs. Existing development should be upgraded as development occurs in the surrounding area.
- Major street improvements should accompany future development.
- The city should develop a feasible program for conversion of septic systems.

GOAL: ESTABLISH CITY PLANNING/ZONING AUTHORITY WITHIN PROPOSED ANNEXATION AREAS.

- Amended zoning, subdivision, and design regulations (or a unified development ordinance) should be implemented in the future annexation areas.
- Agricultural areas should be preserved until such time when a proposed development is made according to the Land Use Plan.
- Cluster housing should be encouraged throughout the future annexation area to minimize the impact of development and to preserve the rural character to the greatest extent possible.
- Do not permit subdivisions with lots fronting on future arterial streets.
- Subdivisions should be developed with roads and pedestrian ways that interconnect neighborhoods to reduce unnecessary vehicular trip requirements and promote walking and bicycling to everyday destinations.
- Do not permit residential subdivisions in the annexation area, except within the rural residential land use area, which do not provide for central sewers and an interim treatment facility.

GOAL: CREATE CITY, COUNTY AND COMMUNITY SUPPORT FOR ANNEXATION.

- Meetings with large tract property owners should occur to discuss the development potential of their land and the city utility service benefits afforded by annexation.
- Request that the County obtain adequate rights-of-way for future streets prior to subdivision of land.
- Public improvements and incentives should be used to accelerate development within desired areas (preferable to avoid piecemeal development).

ANNEXATION AREAS

The future annexation area, which is referred to as the overall Lansing community, has been divided into four areas which are distinct relative to watershed and proximity to Main Street. These areas are referred to as Seven Mile Creek Watershed, Nine Mile Creek Watershed, Main Street Corridor, and Delaware Township. Each of these four areas is color-coded separately on Map 12, Annexation Plan, page 81. Annexation of smaller areas within each of these four larger areas can occur concurrently. The division of the overall annexation area is necessary and appropriate since sanitary sewer service within the Seven Mile Watershed and Nine Mile Watershed is provided on interceptor lines that will be extended independent of each other. Additionally, the remainder of Delaware Township located east of Main Street and south of the existing city, is a distinct area that is outside of the current water treatment capacity of the City of Lansing. Within the Delaware Township the site of the future airport and surrounding area proposed for light industrial/ business park development has been identified as a priority area for annexation. While this area my be outside the current service capacity of the wastewater treatment facility, if development of the airport moves forward, this area would become a high priority area for expansion. Finally, because of the significance of business development along Main Street and the high image impact on the City of Lansing and surrounding community, Main Street is an area distinctly different from any other and the city should have a strategy in place to take advantage of expansion of this commercial corridor to the south.

SEVEN MILE CREEK WATERSHED

Shaded in as purple on the Annexation Plan, this area consists of 3,112 +/- acres located west of the City of Lansing generally between Desoto Road and Tonganoxie Drive, Eisenhower Road and the ridge between the Seven and Nine Mile Creek drainage basins. The area is divided into smaller areas of parcels with similar characteristics.

NINE MILE CREEK WATERSHED

Shaded in as blue on the Annexation Plan, this area consists of 5,300 +/- acres located mostly southwest of the City of Lansing with additional areas located east of Main Street. All areas are within the Nine Mile Creek Watershed, however this area excludes parcels associated with Main Street due to the distinct impact of development along Main Street. The area is divided into smaller areas of parcels with similar characteristics.

MAIN STREET CORRIDOR

Shaded in as yellow on the Annexation Plan, this area consists of 1,360 +/- acres located south of the City of Lansing on each side of Main Street. The area is divided into smaller areas of parcels with similar characteristics.

DELAWARE TOWNSHIP

Shaded in as green on the Annexation Plan, this area consists of 5,700 +/- acres located southeast of the City of Lansing to the Missouri River on the east and Wyandotte County line on the south. Part of this area is identified for priority consideration associated with future municipal airport development. For all of the remaining area that is not subdivided into sub-areas, it is assumed that annexation would occur incrementally, as appropriate.

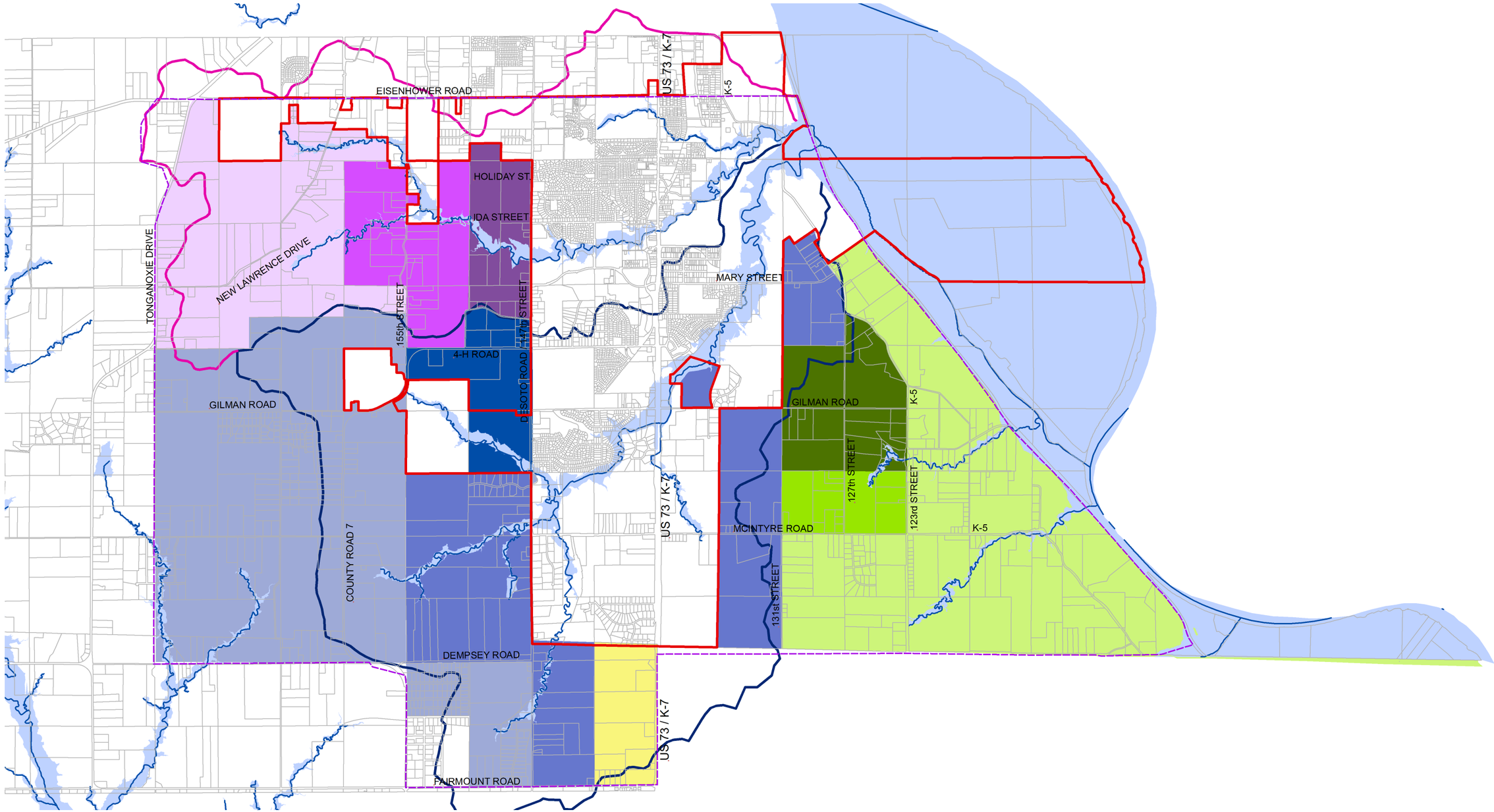
IMPLEMENTATION STRATEGY

Action statements were prepared and approved by Comprehensive Plan committees. These are essential to successful execution of the plan. Some of the tasks identified in the action statements were executed as part of the update process. Others require follow-up work in the next several years. The next steps for implementation are incorporated into a Comprehensive Implementation Strategy for all of the Comprehensive Plan elements. This Comprehensive Implementation Strategy (including a table that identifies parties responsible, time frames, and other considerations) is discussed in greater detail in the final section of the plan. The Annexation Action Statements are provided below.

PRIORITIZED IN SEQUENCE (SOME ONGOING SIMULTANEOUSLY)

- Further define the future annexation area by reasonable boundaries based on streets, property lines, and natural boundaries (accomplished with approval of this plan).
- Develop a program for systematic annexation of the Seven and Nine Mile Creek watersheds, within the parameters of current annexation legislation, to protect the watersheds and provide sewer connections.
- Pursue extraterritorial zoning and subdivision authority within the limits of the Lansing Urban Growth Management Area.
- Establish a committee to meet and work with county residents in the area of interest, to define their needs and reach a common ground for annexation.
- Develop a program and service delivery plan for systematic annexation of the areas south of Lansing and east of Main Street outside the Seven and Nine Mile Creek watersheds.
- Develop and implement a public information campaign throughout the proposed annexation areas.
- Foster support for annexation by elected city officials.

MAP 12 | ANNEXATION MAP



LEGEND

- URBAN GROWTH MANAGEMENT AREA
- CITY LIMITS
- COUNTY PARCEL
- STREAMS
- FLOOD PLAIN
- 7 MILE CREEK DRAINAGE BASIN
- 9 MILE CREEK DRAINAGE BASIN

7 MILE CREEK DRAINAGE BASIN

- 1ST PRIORITY
- 2ND PRIORITY
- 3RD PRIORITY

9 MILE CREEK DRAINAGE BASIN

- 1ST PRIORITY
- 2ND PRIORITY
- 3RD PRIORITY

DELAWARE TOWNSHIP

- 1ST PRIORITY
- 2ND PRIORITY
- 3RD PRIORITY

MAIN STREET CORRIDOR

- 1ST PRIORITY

LOCAL RENEWABLE ENERGY ALTERNATIVES AND ENERGY CONSERVATION

VISION

AN ENERGY EFFICIENT CITY WITH ACCESS TO RENEWABLE ENERGY GENERATION INCLUDING SOLAR AND WIND ENERGY.

GOALS AND RECOMMENDATIONS

GOAL: PROMOTE ENERGY CONSERVATION AND ACCESS TO RENEWAL ENERGY GENERATION.

- Encourage the use of solar energy in future housing developments and preservation of access to solar energy through thoughtful site layout and design including orientation of the structures, windows, and location and type of landscaping.
- Encourage future private buildings and building sites to design for renewal energy including for solar energy access through thoughtful location of windows, landscaping, and hard surfacing.
- Support educational opportunities and programs to promote energy conservation and renewal energy generation.
- Make energy efficiency a priority for new or remodeled city facilities.

IMPLEMENTATION STRATEGY

With the assistance of the Mid-America Regional Council (MARC) serving the Kansas City Metropolitan Area, and other professionals, develop and implement through zoning and building codes Best Management Practices (BMPs) for:

- Solar - photovoltaic and thermal (permitting, promoting and solar ready design, orientation, and access).
- Wind Energy - small wind energy conversion systems (permitting and promoting - ag/rural only).
- Geothermal.
- LED exterior, site, and street lighting.
- International Building Code energy conservation provisions - thermal building envelope and efficient equipment standards (enforcement and incentivizing).

These practices should also be utilized on City building and infrastructure projects when possible. State and Federal grant opportunities should also be sought when possible including Department of Energy (DOE) grants and local energy service provider rebates.

06

FUNDING, STATUTES & IMPLEMENTATION

The Comprehensive Plan committees identified a need for significant proactive pursuit of future growth and proper management of that growth. The quality and type of this future growth will be a defining factor in the image and quality of life of the City of Lansing. There exists an ongoing need to enhance and improve the older existing areas of the city, while simultaneously planning for high quality new development. It is recognized that comprehensive improvement plans and programs are necessary to accomplish the goals of this section. Because of the nature of much of the future growth in Lansing, these comprehensive improvement plans require public/private partnerships. Since there are not enough public funds to do all of the improvements to streets, utilities, sidewalks, etc., the City should focus funds into demonstration projects where all street deficiencies in a particular block are corrected and housing improvements are targeted. The incentives should be used to encourage private investment, an essential part of revitalization. Several grants and implementation statutes, in addition to public and private funds, will be a part of future development proposals. Programs that attract investors of all income levels should be a part of the plan. Additionally, many opportunities and constraints that exist within these future growth areas should be considered during the planning stage. Information regarding applicable grants, statutes, and opportunities and constraints is provided on the following pages. This list is not meant to be all inclusive and programs will continue to

change over time. This provides a cross section of applicable programs that should be considered as part of Lansing's implementation strategy. Public/private partnerships should be explored to further leverage funds.

FUNDING AND STATUTES

FEDERAL GRANTS AND FUNDING PROGRAMS

COMMUNITY DEVELOPMENT BLOCK GRANTS

The Department of Housing and Urban Development (HUD) administers federal Community Development Block Grants to address a wide range of unique community development needs including neighborhood stabilization, revitalization and for comprehensive development projects (combining downtown revitalization with housing and infrastructure).

FEDERAL TRANSPORTATION FUNDS

The Kansas Department of Transportation administers federal transportation funds for system enhancement projects, transportation enhancement projects and surface transportation projects. The surface transportation projects are designated through the Mid-America Regional Council. This program requires a local match and is facilitated as reimbursement program, not a grant program. In some situations, Lansing would need to have the capacity to pay a contractor for work prior to submitting for reimbursement of the funds, less the match amount. This is not always the case as some projects are administered by KDOT directly.

HOME FUNDS AND USDA HOME LOAN PROGRAM

The Department of Housing and Urban Development (HUD) administers federal HOME funds. These grants are for low to moderate income homebuyers. The city can apply for these grants to encourage owner occupancy. Grants are available for owner occupied housing rehabilitation. This city recently became eligible to participate in the USDA Home Loan Program.

HISTORIC PRESERVATION FUND

The Historic Preservation Office administers Federal Historic Preservation Grants. These are for survey and planning in historic areas. The City of Lansing could potentially qualify for these grants for the area south of the prison (from Kansas Avenue nearly to East Mary Street). The survey grants would be used to determine the historic and architectural value of the area and the planning grants could then be used to pursue designation on the State or National Register of Historic Places or to develop such things as architectural guidelines for rehabilitation projects.

STATE AND LOCAL GRANTS AND FUNDING PROGRAMS

LOCAL GOVERNMENT OUTDOOR RECREATION GRANTS

The Kansas Department of Wildlife, Parks and Tourism administers both federal and state funds for outdoor recreation improvements. These typically require that City funds are matched dollar for dollar with the grant amount. One example is the Land and Water Conservation Fund that provides 50% reimbursement to selected outdoor recreation projects that are sponsored by political subdivisions and other appropriate public agencies. Qualifying projects include development and/or acquisition of outdoor facilities for the purpose of public recreation. Another available program is the Recreational Trails Grant program that provides matching funds, on a reimbursement basis, for eligible recreational trail and trail-related projects. All projects selected must fall into one or more of three categories: motorized, non-motorized, or diversified recreational trail or trail-related projects. Proposals that provide for improved Americans with Disability Act (ADA) and environmental impacts will receive a high priority. Projects that provide for motorized recreation activities are encouraged, as 30% of the funding is to be devoted to motorized projects. A local match is required for this grant program.

HERITAGE TRUST FUNDS

The Historic Preservation Office administers the State Heritage Trust Fund for preservation activities on listed properties. The maximum grant amount in any given cycle and require a local match. There is no limit on the number of times applications can be made. Grant application deadlines are typically in March.

KANSAS DEPARTMENT OF COMMERCE, BUSINESS AND COMMUNITY DEVELOPMENT DEPARTMENT

Business and Community Development Assistance offers a handful of different services to help revitalize a project. Services can include "developing incentive proposals based on the business' needs and projected growth; creating strategic and proactive community development plans for communities to address a wide variety of needs; ensuring that all of the Department of Commerce's available resources are considered for a project.; serving as a liaison with other state agencies, including the departments of Revenue, Labor, and Health and Environment." Specific programs offered through this department are the Community Development Block Grant Program; the Kansas Downtown Redevelopment Act; the Kansas PRIDE; and Rural Opportunity Zones (ROZ). www.kansascommerce.com

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT (KDHE)

KDHE serves rural Kansas in multiple capacities. The Kansas Brownfields Program can help communities pay for and perform environmental assessments on potentially contaminated properties. The Office of Rural Health connects rural communities with state and federal resources related to sustainable health care delivery systems and to ensure access to services in rural Kansas. KDHE also invests in water, wastewater and sewer infrastructure. www.kdheks.gov

KANSAS ENERGY OFFICE (KEO)

The KEO's Facility Conservation Improvement Program (FCIP) assists public entities in using performance contracting to finance energy-efficiency upgrades in public buildings. Other KEO programs are available to assist the public sector with energy efficiency and renewable energy projects. www.kcc.ks.gov/energy

TAX INCREMENT FINANCING

Tax Increment Financing is discussed in detail in Kansas Statutes 12-1770 through 12-1780. Refer to the current statutes for the complete text. A summary of the statute is provided below:

The governing body may adopt a resolution finding a specific project area to be a blighted, conservation, or major tourism area and the conservation, development, or redevelopment of such areas as necessary to promote the general and economic welfare of the city.

A redevelopment district may then be adopted by resolution for public uses and purposes for which public money may be expended and the power of eminent domain exercised (with certain procedures including ultimately a 2/3 vote of governing body, except in conservation areas where eminent domain is not allowed). This requires a comprehensive plan that identifies all of the proposed redevelopment project areas and identifies in a general manner all of the buildings and facilities that are proposed to be constructed or improved.

The purpose of such a district is to define and allow any increment in ad valorem property taxes resulting from a redevelopment district can be apportioned to a special fund for the payment of the cost of the redevelopment project when it is built. The increment is the amount in excess of the amount which is produced from such property and attributable to such property prior to the date of the redevelopment plan.

The special fund can be used for the payment of principal and interest on any special obligation bonds or full faith and credit tax increment bonds issues to finance the project. Special obligation bonds or full faith and credit tax increment bonds may be issued for such things as development financing, acquisition, relocation, site preparation, utilities, streets, sidewalks, plazas, arcades, parking, landscaping, and other amenities. Bonds may not be used for the construction of buildings or other structures to be owned by or to be leased to such developer.

Special obligation bonds are payable from property tax increments; revenues of the City derived from any redevelopment project; private sources; contributions or other financial assistance from the state or federal government; revenue received by the City from transient guest, sales and use taxes if there is a finding by the Secretary of Commerce that the redevelopment project is of statewide as well as local importance; increased revenue received by the city from franchise fees; or revenue received by the city from sales taxes.

To implement the comprehensive plan of the redevelopment district, individual redevelopment plans within the overall redevelopment district can be prepared and adopted. Any redevelopment plan undertaken within the redevelopment district may be in separate development stages. Each plan shall be adopted and shall fix a date for completion (within 20 years). Any city proposing to undertake a redevelopment project within a redevelopment district shall prepare a redevelopment plan in consultation with the planning commission of the city.

BUSINESS IMPROVEMENT DISTRICT

The Business Improvement District Act is discussed in detail in Kansas Statutes 12-1781 through 12-1793. Refer to the current statutes for the complete text. A summary of the statute is provided below:

The governing body may establish one or more business improvement districts within the city and provide for the administration and financing of additional and extended services to businesses within such districts. The purpose of the district is to allow the governing body to annually levy business improvement service fees. The annual fees shall be based on the amount of space used for business, street front footage, building or land square footage, the number of employees, the type of business or other reasonable factor.

The districts can be used for:

- The beautification of the district, such as by landscaping and plantings, fountains, shelters, benches, sculptures, signs, lighting, decorations and similar amenities, including the maintenance thereof;
- The provision of special or additional public services, such as sanitation, the security of persons and property and the care and maintenance of public facilities, including sidewalks and other public areas;
- The provision for or the financial support of public transportation services and vehicle parking facilities open to the general public, including the operation and maintenance of parking facilities which may have been established by the issuance of bonds and the levying of special assessments;
- The development of plans for the general architectural design of public areas and the development of plans and programs for the future development of the district;
- The development, promotion and support of community events and activities open to the general public; and
- Any other services which the city is authorized to perform and which the city does not also perform to the same extent on a city-wide basis.

COMMUNITY IMPROVEMENT DISTRICT

The Community Improvement District act is detailed in Kansas Statutes 12-6a26 through 12-6a36. Refer to the current statutes for the complete text. A summary of the act is provided below:

…any municipality may impose a community improvement district sales tax on the selling of tangible personal property at retail or rendering or furnishing services taxable pursuant to the provisions of the Kansas Retailers' Sales Tax Act, and amendments thereto, within a community improvement district for purposes of financing a project in such district in any increment of .10% or .25% not to exceed 2% and pledging the revenue received therefrom to pay the bonds issued for the project or to reimburse the cost of the project pursuant to pay-as-you-go financing.

The districts can be used to fund:

- Any project within the district to acquire, improve, construct, demolish, remove, renovate, reconstruct, rehabilitate, maintain, restore, replace, renew, repair, install, relocate, furnish, equip or extend:
  - Buildings, structures and facilities;
  - Sidewalks, streets, roads, interchanges, highway access roads, intersections, alleys, parking lots, bridges, ramps, tunnels, overpasses and underpasses, traffic signs and signals, utilities, pedestrian amenities, abandoned cemeteries, drainage systems, water systems, storm systems, sewer systems, lift stations, underground gas, heating and electrical services and connections located within or without the public right-of-way, water mains and extensions and other site improvements;
  - Parking garages;

- Streetscape, lighting, street light fixtures, street light connections, street light facilities, benches or other seating furniture, trash receptacles, marquees, awnings, canopies, walls and barriers;
- Parks, lawns, trees and other landscape;
- Communication and information booths, bus stops and other shelters, stations, terminals, hangers, rest rooms and kiosks;
- Paintings, murals, display cases, sculptures, fountains and other cultural amenities;
- Airports, railroads, light rail and other mass transit facilities; and
- Lakes, dams, docks, wharfs, lakes or river ports, channels and levies, waterways and drainage conduits.

- Within the district, to operate or to contract for the provision of music, news, child-care, or parking lots or garages, and buses, minibuses or other modes of transportation;
- Within the district, to provide or contract for the provision of security personnel, equipment or facilities for the protection of property and persons;
- Within the district, to provide or contract for cleaning, maintenance and other services to public or private property;
- Within the district, to produce and promote any tourism, recreational or cultural activity or special event, including, but not limited to, advertising, decoration of any public place in the district, promotion of such activity and special events and furnishing music in any public place;
- Within the district, to support business activity and economic development, including, but not limited to, the promotion of business activity, development and retention and the recruitment of developers and business;
- Within the district, to provide for or support training programs for employees of businesses; and
- To contract for or conduct economic impact, planning, marketing or other studies.

NEIGHBORHOOD REVITALIZATION ACT

The Neighborhood Revitalization Act is discussed in detail in Kansas Statutes 12- 17,114 through 12-17,120. Refer to the current statutes for the complete text. A summary of the statute is provided below:

The governing body of any municipality may designate a neighborhood revitalization area if it finds that the rehabilitation, conservation or redevelopment of the area is necessary to protect the public health, safety or welfare of the residents. The purpose of the designation is to allow any increment in ad valorem property taxes levied by the municipality resulting from improvements by a taxpayer to property in a neighborhood revitalization area to be credited to a neighborhood revitalization fund. All or a part of the property increment can then be returned to the taxpayer in the form of a rebate. Additionally, moneys may be budgeted and transferred to the fund from any source which may be lawfully utilized for such purposes. Any municipality may expend money from the general fund to accomplish the purposes of this act. This is not an income restricted program.

STATUTES

ANNEXATION STATUTE

Annexation is discussed in detail in Kansas Statutes 12-520 through 12-524. Refer to the current statutes for the complete text. A summary of the statute is provided below:

The governing body of a city may annex land if one or more of the following exists:

- The land is platted, and some part of the land adjoins the city.
- The land is owned by or held in trust for the city or any agency thereof.
- The land adjoins the city and is owned by or held in trust for any governmental unit other than another city, except that no city may annex land owned by a county which has primary use as a county-owned and operated airport, or other aviation related activity or which has primary use as a county owned and operated zoological facility, recreation park or exhibition and sports facility without the express permission of the Board of County Commissioners of the county.

- The land lies within or mainly within the city and has a common perimeter with the city boundary line of more than 50%.
- The land, if annexed, will make the city boundary line straight or harmonious and some part thereof adjoins the city, except no land in excess of 21 acres shall be annexed for this purpose.
- The tract is so situated that 2/3 of any boundary line adjoins the city, except no tract in excess of 21 acres shall be annexed under this condition.
- The land adjoins the city and a written petition for or consent to annexation is filed with the city by the owner.
- No portion of any unplatted tract of land devoted to agricultural use of 21 acres or more shall be annexed by any city under the authority of this section without the written consent of the owner thereof.
- No city may annex any improvement district under the authority of this section.

When a governing body pursues annexation of land not permitted under the previous conditions, they present a petition to the Board of County Commissioners of the county requesting a public hearing. This petition must provide a legal description of the land and include a report on the plans for the extension of services.

Board of County Commissioners shall consider the impact of approving or disapproving the annexation of the entire community involved in order to ensure the orderly growth and development of the community. The board will then make specific written findings of fact and conclusions determining whether annexation causes manifest injury to the owners of any land proposed to be annexed, or to the owners of land in areas near or adjacent to the land, or to the city. In determining manifest injury, the Board considers the following criteria:

- Extent to which any of the area is land devoted to agricultural use;
- Area of platted land relative to unplatted land;
- Topography, natural boundaries, storm and sanitary sewers, drainage basins, transportation links or any other physical characteristics which may be an indication of the existence or absence of common interest of the city and the area proposed to be annexed;
- Extent and age of residential development in the area to be annexed and adjacent land within the city's boundaries;
- Present population in the area to be annexed and the projected population growth during the next five years in the area proposed to be annexed;
- The extent of business, commercial and industrial development in the area;
- The present cost, methods and adequacy of governmental services and regulatory controls in the area;
- The proposed cost, extent and the necessity of governmental services to be provided by the city proposing annexation and the plan and schedule to extend such services;
- Tax impact upon property in the city and the area;
- Extent to which the residents of the area are directly or indirectly dependent upon the city for governmental services and for social, economic, employment, cultural and recreational opportunities and resources;
- Effect of the proposed annexation on the city and other adjacent areas and districts;
- Existing petitions for incorporation of the area as a new city or for the creation of a special district;
- Likelihood of significant growth in the area and in adjacent areas during the next five years; and
- Effect of annexation upon the utilities providing services to the area and the ability of those utilities to provide those services shown in the detailed plan.

EXTRATERRITORIAL ZONING & SUBDIVISION AUTHORITY STATUTE

Zoning of land outside city limits is discussed in detail in Kansas Statute 12-715b. Adoption of subdivision regulations and building codes affecting property outside the city is discussed in detail in Kansas Statutes 12-750 through 12-751. Refer to these statutes for the complete text. A summary is provided on the next page:

Cities are authorized to adopt zoning regulations for land outside the city but within three miles (except parcels over three acres under one ownership used only for agricultural purposes), under certain conditions:

- City has a planning commission which provides for the appointment of two commission members who reside outside the city but within the area subject to the zoning, or has a joint metropolitan or regional planning commission,
- The land subject to the zoning regulations has been included within a comprehensive plan recommended by the planning commission and approved by the governing body,
- The county has specifically excluded the land from county zoning, and
- The city has notified the Board of County Commissioners in writing 60 days before initiating zoning regulations.

If the governing body of a city proposes to adopt subdivision regulations (and the building code) affecting property lying outside of the city and governed by subdivision regulations of the county, a copy of the city's proposal shall be certified to the Board of County Commissioners. Within 60 days, a joint committee will be appointed for adoption and administration of subdivision regulation. That committee shall be composed of: three members of the County Planning Commission to be appointed by the chairperson of the County Planning Commission, three members of the City Planning Commission to be appointed by the chairperson of the City Planning Commission, and one member to be selected by the other six members.

COMPREHENSIVE NEIGHBORHOOD REVITALIZATION PLANS

Neighborhood revitalization requires a comprehensive plan to address all aspects of the neighborhood including housing, streets, utilities, and amenities. Therefore public and private stakeholders are required to make revitalization a reality. Various grants are available and should be pursued for revitalization, however, are only one aspect of a comprehensive plan.

Revitalization requires commitment by a city to infuse public funds and incentives. Since there are not enough public funds to do all of the improvements to streets, utilities, sidewalks, etc., the city should focus funds into demonstration projects where all street deficiencies in a particular block are corrected and housing improvements are targeted. The incentives should be used to encourage private investment, an essential part of revitalization. Therefore programs that attract investors of all income levels should also be a part of the plan. Finally, related leisure facilities (parks) and retail services that support a neighborhood should be upgraded to meet the demands of the market.

IMPACT OF FUTURE GROWTH ON SCHOOLS

Aggressive pursuit of future growth will likely have an impact on the Lansing School District. City efforts to make the area more attractive to developers, both residential and commercial, will open the market to higher population growth, and therefore additional school age children. The existing school facilities are adequate for the next several years; however significant growth could change that. The elementary school facilities, in particular, are most likely to require additional space as growth continues south and west of the existing city limits. Sites for an additional elementary school facility to serve the western and southern areas of the district should be explored. This could allow the school district to operate two facilities that serve as neighborhood based elementary schools.

SERVICE DELIVERY IN THE ANNEXATION AREAS

Kansas law allows cities to annex land by several different methods, depending upon the circumstances. Unilateral annexation is permitted in Kansas for annexations that meet certain criteria. Also permitted are consent annexations (given other criteria) and annexations involving the approval of the board of county commissioners.

In order to implement a more strategic and sustainable growth pattern, smaller areas of similar existing conditions should be pursued for annexation (similar to that outlined in this Plan). This allows the city to cater the service delivery to the needs of the particular property owners, and to afford upgrades within reasonable time frames.

Currently most residents of Lansing receive higher levels of service related to water, sanitary sewer, and road improvements/ maintenance. Generally speaking, water lines within the city are looped and good pressure is available. Additionally, fire hydrants are properly spaced to adequately supply water for emergencies. Undeveloped areas (mostly in the county) do not have this same level of service due primarily to the rural character. As areas are annexed and development occurs, the city should ensure that water main improvements are implemented not only in new development but also in existing development.

Sewer interceptors should be extended into annexation areas upon annexation. This will allow immediate development to occur in the annexed area. Existing residents who are currently served by septic systems should be provided with specific options for upgrading to sanitary sewer. These options should also outline the comparable maintenance costs that are typical over time with septic systems so that property owners are fully informed in their decision making. Improved road maintenance should occur immediately in the annexed area, and road improvements should be implemented as the annexed area is developed (or in a reasonable amount of time from annexation).

Additional facilities and services that are being implemented as part of this plan include neighborhood parks with children's play areas, neighborhood revitalization, where appropriate, greenway and trail development, bike trails and lanes, and Main Street enhancements. These services should also be planned for future annexation areas so that implementation can occur in the annexed area over a reasonable amount of time.

EXTRATERRITORIAL ZONING & SUBDIVISION AUTHORITY

A primary concern in the future annexation area is to ensure that development occurs in a manner that respects future development of surrounding areas. This can be done through annexation or through zoning and subdivision authority outside of the city. Since practicality and costs prevent annexation of the entire area, zoning and subdivision authority can help the community meet its objectives. Improvements to the existing city regulations will ensure that new development meets the objectives of the community for a high quality living environment. Additionally, zoning and subdivision authority would reinforce the specific goals and recommendations of this plan including:

- contiguous development rather than piecemeal development,
- preservation of agricultural land until such time as contiguous development occurs,
- cluster development to preserve high quality conservation areas and the rural character rather that development facing onto major roadways thereby restricting development of interior land, and
- community sanitary sewer service rather than multiple septic systems.

COMPREHENSIVE IMPLEMENTATION STRATEGY

Transforming plans into public policy is primarily the responsibility of local government. Public policy decisions are put into effect by numerous legal and administrative procedures. Some policy decisions require action on the part of city government; others depend upon the actions of individuals within the city, guided by municipal regulations. While the responsibility for transforming plans into policy rests with the local government, a truly effective program of plan implementation must include both voluntary cooperation of the citizens and direct governmental action and regulation. This Comprehensive Plan report contains plans, visions, goals, recommendations, and minimum standards for all phases of the growth of the City of Lansing. In order to make these various elements a meaningful guide to development, an overall program for their implementation must be developed. To this end, the implementation recommendations of the various Comprehensive Plan components have been incorporated into a Comprehensive Implementation Strategy, Table 22, beginning on page 91.

The City Council and staff should hold an annual strategic workshop on Economic Development to review and prioritize major and minor projects, such as the airport and K5, and create and economic development strategy with short and long term goals and action steps. The Planning Commission and staff should also annually review the Comprehensive Plan, including the implementation strategy table, and propose to the City Council updates and changes as may be warranted.

LAND USE

COMMERCIAL / BUSINESS / INDUSTRIAL / IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Update and maintain Future Land Use Map to allocate adequate land for commercial development.	High	Updated in 2014	Planning Commission	Annually	Undetermined
Extend MSOD south and along Eisenhower.	High	In-process	Planning Commission	Undetermined	Undetermined
Pursue extraterritorial zoning and subdivision authority in the identified Lansing area of interest or establish joint planning the County.	High		Planning Commission	Undetermined	Undetermined
Encourage the rezoning and redevelopment of properties to be consistent with the Future Land Use Plan and evaluate all future rezoning applications for consistency with the Future Land Use Plan as well as the goals contained within this plan.	High	On-going	Planning Commission	Undetermined	Undetermined
Update the zoning and subdivision regulations to support and advance the goals of this Plan - potentially through the creation of a Uniform Development Ordinance (UDO).	High		Planning Commission	Undetermined	Undetermined
Expand and refine current standards for commercial and industrial developments that address architecture, signage, parking, sidewalks, drainage, utilities, lighting, pedestrian facilities (benches, handicap access, trash receptacles), screening of service areas and trash dumpsters, open space, landscaping, and trail connections to residential developments and public facilities.	Medium	In-process	Planning Commission	Undetermined	Undetermined
Create an economic development strategy based on the recommendations in this plan, including funding for incentives.	Medium		Economic Development Committee	Undetermined	Undetermined
Search for funding opportunities, grants and additional partners for the development of the Leavenworth County Airport within Lansing's growth area, and periodically review and update the airport study in partnership with the County.	Medium		Economic Development Committee	Annually	Undetermined

RESIDENTIAL - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Review expected population growth for Lansing and update the future land use plan that allocates adequate land for the diverse residential land use envisioned for the community.	High	Updated in 2014	Planning Commission	Annually	Undetermined
Reassess the residential zoning categories with emphasis on establishing a rural or suburban zone and a zero lot line or patio home zone.	High		Planning Commission	Undetermined	Undetermined
Pursue extraterritorial zoning and subdivision authority in the identified Lansing area of interest or joint planning with the county.	High		Planning Commission	Undetermined	Undetermined
Develop and adopt specific building and site design standards for multi-family housing.	High		Planning Commission	Undetermined	Undetermined
Encourage the rezoning and redevelopment of properties to be consistent with the Future Land Use Plan and evaluate all future rezoning applications for consistency with the Future Land Use Plan as well as the goals contained within this plan.	High	On-going	Planning Commission	Undetermined	Undetermined
Continue the Lansing Tree Board and other existing programs (i.e. Master Gardeners) and encourage landscaping through brochures, seminars, and guidance.	Medium		Parks Advisory Board	Undetermined	Undetermined
Review appropriateness of the existing sidewalk standards and include provisions for trail connections within subdivisions and to commercial developments and community facilities. Coordinate with Trails System Master Plan.	Medium		Parks Advisory Board	Undetermined	Undetermined
Continue to develop standards for the location of utility easements and utility service lines.	Low		Public Works Department	Undetermined	Undetermined
Review street light requirements and determine standard for evaluating proposed placement of street lights by Westar.	Low		Public Works Department	Undetermined	Undetermined
Consider the appropriateness of separate standards for rural residential areas.	Low		Public Works Department	Undetermined	Undetermined
Research the need, potential locations, assistance programs, and potential developers for elderly and affordable housing.	Low		Planning Commission	Undetermined	Undetermined

TRANSPORTATION

TRANSPORTATION SYSTEM - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Revise the thoroughfare plan to accommodate current objectives throughout the entire Lansing area of interest and incorporate changes since the last Comprehensive Plan (accomplished with approval of this plan).	High	Updated in 2014	Public Works Department	Undetermined	Undetermined
Develop, design, and execute the existing Main Street System Enhancement Proposal (including intersection improvements, street widening, center turn lanes, traffic control devices, frontage or reverse frontage roads, bridge widening, bicycle paths, sidewalks, enhanced pedestrian crosswalks, green space, landscaping, utility burial/relocation and uniform lighting) to work in concert with an overall Main Street Development Strategy.	High		Public Works Department	Undetermined	Undetermined
Continue an incremental street repair program to accomplish city-wide repairs at a constant rate and improvements to K-7.	High		Public Works Department	Undetermined	Undetermined
Through a planning alliance with the County, an interchange system should be incorporated into the plan.	Medium		Public Works Department	Undetermined	Undetermined
Continue to keep up-to-date the street specifications adopted in 2003.	Medium		Public Works Department	Undetermined	Undetermined
Fund Ida, McIntyre, and Gilman Road projects.	Medium		City Council	Undetermined	Undetermined
Study the concept, potential location, and impact of an alternate route to serve west Lansing (K-5 corridor, as well as 30th Street Trafficway).	Medium		Public Works Department	Undetermined	Undetermined
Develop a distinct Lansing identity through the implementation of street trees, landscaping, and gateways within the Lansing city limits.	Low		Public Works Department	Undetermined	Undetermined
Develop a concept for improved access to the Interstate Highway system.	Low		Public Works Department	Undetermined	Undetermined
Coordinate the design of proposed frontage road access for Highway 7/73 with KDOT.	Low		Public Works Department	Undetermined	Undetermined

COMMUNITY FACILITIES

PARKS AND RECREATION - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Develop a plan for open space and aesthetic enhancements (green space, landscaping, enhanced pedestrian walkways and other pedestrian elements, bike paths, enhancement to bridge architecture, public art) along Main Street to be incorporated in conjunction with the existing Main Street System Enhancement Proposal and in cooperation with an overall Main Street Redevelopment/Development Strategy. (Completed Neighborhood Revitalization, MSOD, Master Trails Plan)	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Continue to develop the Parks and Recreation Department and investigate and determine which functions and facilities should be part of that department. Examine the functions and composition of the Parks and Recreation Board as part of this effort.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Explore grants, levies, assessments, etc., to fund park and greenway acquisition, design, and construction.	Undetermined		Parks Advisory Board	Annually	Undetermined
Further develop and implement a plan for acquisition, design, and construction of a city-wide trail system for pedestrians and bicyclists that connects all residential subdivisions, commercial services, and park facilities throughout the Lansing area of interest. This would include development of linear trail systems along the Seven and Nine Mile Creeks in conjunction with storm water improvement projects. (Occurs through development, Stream Buffer Ordinance)	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Assemble a committee to study the concept of a community pool to determine the types of users, type of facility, and the possibility of a joint city/school project. (Completed – Citizens Committee currently doing several studies)	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Continue to develop a plan and implementation proposal for athletic fields on the school district property south of the Middle School in a joint school-city project and/or on other properties.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Form a committee to assess the need for a major sports complex and determine the size and location of sports fields, and other sports facilities needed at this complex.	Undetermined		Parks Advisory Board	Undetermined	Undetermined

COMMUNITY & ACTIVITY CENTERS / LIBRARY / EDUCATION - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Conduct a community survey and an analysis of the current use of the Activities Center to determine the appropriateness of the services provided, the adequacy of the facility, and the economic vitality of the operation.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Determine which services might be transferred to a new center and which ones still need to serve the existing neighborhood. Determine the requirements for maintaining the current facility as a viable community asset and construction and operating cost estimates for a new facility in the Towne Center.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Continue to maintain and improve a vibrant library facility for the Lansing Community. Determine potential sources of funding and assess the feasibility of joint programs and resources with USD 469.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Expand the spirit of cooperation between elected city officials and the elected school board to promote integrated planning, joint use of facilities, and to foster the spirit of one community.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Assess the need for and types of education and enrichment programs including those for adults and seniors.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Create an integrated, long-range community service plan that addresses multiple sites and venues with specialty locations and a coordinated program between multiple buildings.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Assess the need for a community auditorium for community theater productions, concerts, and other activities in conjunction with USD 469.	Undetermined		Parks Advisory Board	Undetermined	Undetermined
Continue/increase support for the Lansing Historical Museum.	Undetermined		Parks Advisory Board	Undetermined	Undetermined

COMMUNITY FACILITIES

PUBLIC SAFETY AND UTILITIES - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Continue to improve and maintain quality police services.	High		Police Department	Undetermined	Undetermined
Develop a Comprehensive Plan for delivery of fire, police, water, storm sewer, and sanitary sewer in conjunction with and to determine impact on future annexation areas.	High		City Council	Undetermined	Undetermined
Determine future public fire and safety requirements, including facilities, equipment and personnel needed to meet the demands as Lansing continues to expand and grow.	High		City Council	Undetermined	Undetermined
Continue to expand the wastewater infrastructure (interceptors) to serve the remaining internal areas and to provide collection services to the projected growth areas.	High		Waste Water Department	Undetermined	Undetermined
Continue to develop and implement a plan to expand the capacity of the wastewater treatment system and to meet KDHE requirements.	High		Waste Water Department	Undetermined	Undetermined
Determine the desirability of establishing a storm water utility	High		City Council	Undetermined	Undetermined
Conduct an analysis to determine the coordination, timing, and funding needs as well as an equitable means of assessment to cover funding requirements of converting from a volunteer fire department to a full-time paid fire department.	High	Completed when Fire District One was formed.	City Council	N/A	N/A
Analyze the entire Lansing area of interest to identify future fire facility locations that will best serve a growing community.	Medium		City Council	Undetermined	Undetermined
Continue the ongoing assessment of the flood plain and do a study to determine needs to complete a storm water improvement plan. This plan should incorporate the development of a computer model that will allow detailed analyses of potential impacts on the storm water drainage basin of proposed development actions. (Stream Buffer Ordinance)	Medium		Public Works Department	Undetermined	Undetermined
Prepare an action plan that defines what developers are required to do and provides for a community-wide storm water management system that incorporates gutters, sewers, retention ponds, and well maintained natural drainage creeks.	Medium		Public Works Department	Undetermined	Undetermined

FUTURE GROWTH

MAIN STREET - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Prepare an overall Main Street Development Strategy (including revitalization of existing areas and development of new areas around a central theme).	High		Economic Development Committee	Undetermined	Undetermined
Utilizing the Market Analysis provided with this plan, develop a comprehensive economic development strategy for the Main Street Corridor that is complementary with Eisenhower Road and other commercial areas.	High		Economic Development Committee	Undetermined	Undetermined
Identify, aggressively pursue, and implement economic development and revitalization funding as a part of the above economic development strategy.	High		Economic Development Committee	Undetermined	Undetermined
Enlist help of business owners to develop and implement the Main Street Enhancement Plan.	High		Economic Development Committee	Undetermined	Undetermined
Develop a Main Street Enhancement Plan that provides for landscaping, pedestrian oriented accommodations and gateway identity improvements at the north and south entries to Lansing.	Medium		Public Works Department	Undetermined	Undetermined
Identify and pursue funding to implement proposed Main Street enhancements.	Medium		Economic Development Committee	Undetermined	Undetermined
Continue to employ the Main Street Overlay District standards for properties along Main Street that are consistent with the desired image identified in this plan and by the citizens of Lansing.	Medium		Community Development Division	Undetermined	Undetermined
Develop a comprehensive development concept (including specific identification of desired uses, conceptual design, and feasibility) desired for the Main Street Towne Center site.	Medium	Completed in 2014	Public Works Department	Undetermined	Undetermined

NEIGHBORHOOD REVITALIZATION - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Continue to identify and inventory commercial/industrial areas, residential neighborhoods, natural areas and public facilities/services/utilities appropriate for revitalization.	High	Completed in 2014	Community Development Division	Undetermined	Undetermined
Review, update and enforce standards for housing rehabilitation and infrastructure improvements in older existing neighborhoods.	High		Community Development Division	Undetermined	Undetermined
Create assistance programs for elderly and affordable households.	High		Community Development Division	Undetermined	Undetermined
Identify and aggressively pursue funding sources for revitalization efforts.	Medium		Community Development Division	Undetermined	Undetermined
Develop and execute a consensus building process within the residential neighborhood and commercial revitalization areas (neighborhood action groups).	Medium		Community Development Division	Undetermined	Undetermined
Develop neighborhood revitalization strategies that take an integrated approach to housing rehabilitation, infrastructure improvements, and community involvement.	Medium		Community Development Division	Undetermined	Undetermined
Investigate a rental inspection and licensing program.	Medium		Community Development Division	Undetermined	Undetermined
Implement a neighborhood assistance program with neighborhood boundaries defined by special characteristics of the neighborhood and assistance provided based on housing and infrastructure needs.	Medium		Community Development Division	Undetermined	Undetermined
Review the existing property maintenance code for enforceability and appropriateness and determine the need for systematic code enforcement. Investigate a rental inspection and licensing program.	Medium		Community Development Division	Undetermined	Undetermined
Develop commercial/industrial redevelopment strategies to improve marketability of the commercial/industrial developments.	Medium		Community Development Division	Undetermined	Undetermined
Pursue funding for improvements to natural areas and public facilities.	Medium		Parks Advisory Board	Undetermined	Undetermined

FUTURE GROWTH

ANNEXATION - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Further define the future annexation area by reasonable boundaries based on streets, property lines, and natural boundaries.	Undetermined	Completed in 2014	Community Development Division	Undetermined	Undetermined
Develop a program for systematic annexation of the Seven and Nine Mile Creek watersheds, within the parameters of current annexation legislation, to protect the watersheds and provide sewer connections.	Undetermined		Community Development Division	Undetermined	Undetermined
Pursue extraterritorial zoning and subdivision authority within the limits of the Lansing Urban Growth Management Area.	Undetermined		Community Development Division	Undetermined	Undetermined
Establish a committee to meet and work with county residents in the area of interest, to define their needs and reach a common ground for annexation.	Undetermined		Community Development Division	Undetermined	Undetermined
Develop a program and service delivery plan for systematic annexation of the areas south of Lansing and east of Main Street outside the Seven and Nine Mile Creek watersheds.	Undetermined		Community Development Division	Undetermined	Undetermined
Develop and implement a public information campaign throughout the proposed annexation areas.	Undetermined		Community Development Division	Undetermined	Undetermined
Foster support for annexation by elected city officials.	Undetermined		Community Development Division	Undetermined	Undetermined

LOCAL RENEWABLE ENERGY ALTERNATIVES AND ENERGY CONSERVATION - IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
With the assistance of the Mid-America Regional Council (MARC) serving the Kansas City Metropolitan Area, and other professionals, develop and implement through zoning and building codes Best Management Practices (BMPs) for: • Solar - photovoltaic and thermal (permitting, promoting and solar ready design, orientation, and access). • Wind Energy - small wind energy conversion systems (permitting and promoting - ag/rural only). • Geothermal. • LED exterior, site, and street lighting. • International Building Code energy conservation provisions - thermal building envelope and efficient equipment standards (enforcement and incentivizing).	Undetermined		Community Development Division	Undetermined	Undetermined
Utilize energy conservation BMPs on city buildings and infrastructure projects when possible.	Undetermined		Community Development Division	Undetermined	Undetermined
Seek out funding and grant opportunities to implement energy conservation BMPs.	Undetermined		Community Development Division	Undetermined	Undetermined

FUNDING, STATUES AND IMPLEMENTATION

COMPREHENSIVE IMPLEMENTATION STRATEGIES

Task	Priority	Status	Task Lead	Timeframe	Budget Impact Estimate
Conduct a City Council strategy workshop to create an economic development strategy.	High		Economic Development Department	Annually	Undetermined
Review the Comprehensive Plan and Implementation Strategy Tables and update as may be necessary.	High		Planning Commission	Annually	Undetermined

07 APPENDIX

FISCAL IMPACT ANALYSIS

Fiscal Impact Analysis

City of Lansing
Comprehensive Plan

DRAFT

May 15, 2014

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Lansing Comprehensive Plan
Fiscal Impact Analysis
May 2014

This report summarizes the fiscal impact analysis conducted for the Lansing Comprehensive Plan in Spring 2014. This analysis is based upon the Future Land Use Map developed for the City of Lansing and its associated areas for future growth (included within an Urban Growth Boundary area in Leavenworth County, Kansas) over the next few decades. Based upon metrics associated with the revenues and costs associated with the city growing to achieve the full buildout reflected in the Future Land Use Map, this analysis calculates the annual fiscal impact on the City going forward.

Overview of Assumptions

The fiscal impact analysis examines the fiscal return to the City based upon the net increase in development over the next few decades, and does not include an analysis of the existing developed properties in the city. Per the Future Land Use Map and estimates of the existing acreage in the community by land use type, the following table of growth by land use type in the undeveloped portions of Lansing served as the basis for the analysis.

Land Use Category	Total Acreage	Less: Existing Developed Acreage (or Non-Developable Acreage)	Net Undeveloped Acreage (Eligible for Development)
Rural Residential	10,881	0	10,881
Single Family Detached	4,419	1,600	2,819
Townhome	190	80	110
Airport	702	702	0
Apartments	119	0	119
Business Park / Light Industrial	923	160	763
Civic	2,645	2,645	0
Commercial	315	150	165
Mixed Use	62	5	57
Office	220	10	210
Open Space	219	219	0
Parks	224	224	0
TOTALS --->	**20,919**	**5,795**	**15,124**

The analysis also takes into account estimates of the costs of sewer and transportation system expansions, as outlined as follows, to service the area within the urban service boundary (and shown on the Future Land Use Map). The analysis assumes, furthermore, that the City would be able to share half the cost of a new Trafficway (to connect from K-7 north and west into the western portions of Leavenworth) and half the cost of an interchange at the junction of K-7 and the trafficway (near the existing McIntyre Road) with either KDOT or with other governmental jurisdictions (including the City of Leavenworth or Leavenworth County).

Lansing Comprehensive Plan
Fiscal Impact Analysis
May 2014

CITY OF LANSING	
NEW DEVELOPMENT AREAS	
WITHIN URBAN SERVICE BOUNDARY	
OVERALL INFRASTRUCTURE AND STREET EXPANSION	
TRANSPORTATION	
Collectors	$37,000,000
Arterials	$8,000,000
Interchange	$20,000,000
Trafficway	$40,000,000
Subtotal, Transportation	**$105,000,000**
SANITARY SEWER BUILDOUT	**$206,284,000**
GROSS, INFRASTRUCTURE AND STREET EXPANSION	**$311,284,000**
LESS: 50% COST SHARE ON TRAFFICWAY & INTERCHANGE	($30,000,000)
NET, INFRASTRUCTURE AND STREET EXPANSION	**$281,284,000**

Based upon the land uses outlined on the Future Land Use Map, assumptions concerning density for each land use, and assumptions concerning existing market values and the mill levy and sales tax rates of the City of Lansing, on an annual basis (at full build-out), the areas to be developed within the Urban Service Boundary would produce the following revenues to the City on an annual basis.

GENERAL FUND REVENUES			
		LANSING - NEW DEVELOPMENT AREAS	
		Annual Revenue	
Property Tax		$24,037,345	
Sales Tax		$5,968,809	
Subtotals --->		**$30,006,154**	

Lansing Comprehensive Plan
Fiscal Impact Analysis
May 2014

Based upon metrics compiled from city budgets and assumptions concerning the debt service the City would incur to service debt used to finance new roads and sewers, the City would incur the following net additional costs associated with the full build out of the Future Land Use Plan.

	LANSING - NEW DEVELOPMENT AREAS
General Fund Categories	Annual Expenditures on New Development Areas
General Government	$721,570
Public Safety	$2,178,722
Streets & Street Maintenance	$720,353
Recreation	$807,301
Debt Service on New Sewers & Roads	$27,500,940
Sewer	$0
	$31,928,886

The net of the annual costs to service the growth, as outlined, in the undeveloped portions of the Urban Service Boundary area, versus the net annual revenues stemming from this growth, results in a small annual net cost to the City. However, the cost to the city could be negated through phasing of improvements, or by reducing or eliminating some of the more expensive transportation items (such as an interchange or a new trafficway).

	City of Lansing - Build Out of Undeveloped Areas
Category	
ANNUAL REVENUES	$30,006,154
ANNUAL COSTS	$31,928,886
DIFFERENCE	($1,922,733)

The following are some key takeaways from the fiscal analysis associated with the Comprehensive Plan.

- The analysis as presented above assumes that the City would be able to cost share 50 percent of the costs of the interchange on K-7 and the Trafficway connecting with western

Leavenworth. Failure to achieve cost share agreements or additional funding for these improvements would have a substantial impact on the City from a fiscal perspective.

- From a city management perspective, residential growth (without associated commercial or industrial growth) usually results in a net fiscal cost to a community (in terms of the cost of services), or in a net increase in property tax rate. This analysis assumes that ALL of the land uses depicted on the Future Land Use Map would develop to their full potential. The Future Land Use Map contains a significant acreage of Business Park lands in the southeast part of the community, with the goal of creating new jobs and creating fiscal benefit to the community (in the form of property tax revenue). However, failure to achieve economic development at the Business Park, or failing to gain a significant pool of new tax revenue from development at the Park (by abating a significant part of property taxes generated at the Business Park) would impact the city substantially.

- This analysis assumes a full buildout and full implementation of all improvements such as sewers and roads across the entire study area. In reality, the City would carefully analyze each improvement and development and phase its costs as much as possible in order to reduce the fiscal impacts on the City on a year to year basis. Further analysis will be required as the City moves forward with development.

MARKET ANALYSIS

City of Lansing, Kansas
Comprehensive Plan Update
Market Analysis Summary

Spring 2014

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1. INTRODUCTION

Design Workshop was retained in Spring 2013 to conduct an economic analysis as part of the process of updating the Comprehensive Plan for the City of Lansing, Kansas. Cities routinely conduct updates of official planning documents such as a Comprehensive Plan in order to guide future land use and development decisions going forward. Design Workshop conducted an analysis of the existing economic conditions in the community and the surrounding area and an analysis of the driving forces that impact the economic and market forces in the Lansing vicinity over the next 10 to 20 years. This document summarizes the market and economic analysis and the key takeaways that impact and influence planning for future land uses in the City of Lansing.

2. CITY OF LANSING: BACKGROUND DEMOGRAPHIC AND RELATED TRENDS

The following summarizes key historical and current demographic and economic trends in the City of Lansing and the immediate area.

Demographic Data

As documented in the overall Comprehensive Plan document, the City of Lansing has experienced steady growth over the last two decades, as Leavenworth County and the overall Kansas City metropolitan region has continued to grow.

1990 Population	7,648
2000 Population	9,199
2012 Population	11,372
2017 Population (projected)	11,701
1990 Households	1,866
2000 Households	2,435
2012 Households	3,215
2017 Households (projected)	3,369
1990 Median Household Income	$37,780
2000 Median Household Income	$61,190
2012 Median Household Income	$72,818
2017 Median Household Income (projected)	$81,701

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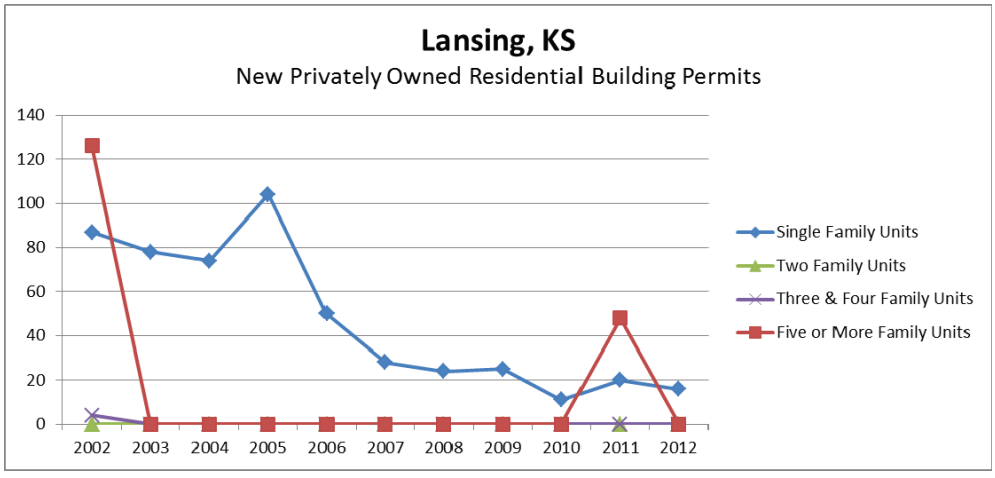
As illustrated in the table, Lansing has grown steadily, by around an additional 4,000 residents, between 1990 and 2012, and the overall population as of 2012 totaled between 11,000 and 12,000 residents. Similarly, the community has added around 1,400 new households over the last 20 years. Importantly, the official Census population totals for the City of Lansing include around 2,000 inmates (on average) in each year that reside within the Kansas State Penitentiary in Lansing. Therefore, the overall population of the Lansing community as of late 2012 was around 9,000 residents. The inclusion of data for inmates at the state prison similarly skews data for household income in the City. The median household income in Lansing was just over $73,000 in 2012, which is well above the median household income levels reported for Leavenworth County overall, the Kansas City metropolitan area, and the state of Kansas overall. The removal of data concerning the state prison would increase the median household income in Lansing above the official census numbers outlined in the table.

Overall, the data for the City of Lansing reveal that the community is generally more affluent than its neighbors in Leavenworth and Wyandotte counties, but population growth remains fairly modest. While the western portions of Kansas City, Kansas have experienced increased population growth over the last several years as developments near and to the west of the Legends development area (at I-435 and State Avenue) have progressed, the Lansing and Leavenworth areas have experienced less growth, given their distance from major highways such as the Kansas Turnpike and I-435.

Building Permits

In line with patterns in the metropolitan area and nationally over the last decade, the City of Lansing experienced a near total stoppage in real estate development during the Great Recession, from 2008 through 2012. As illustrated in the table below, the City reported an average of over 50 single family residential permits from 2002 to 2006, but the yearly total declined to around 20 residential permits per year from 2007 through 2012. Lansing has historically developed a very small number of multi-family units (including duplexes, multi-plex attached units, or apartment complexes) and this trend continued throughout the last ten years, with the exception of a permit for a larger multi-family complex in 2011.



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The community has historically developed traditional, single family detached neighborhoods, marketed to families and to households tied to Fort Leavenworth or to employment elsewhere in the Kansas City metropolitan area.

Current Competitive Environment

The following summarizes some key competitive factors impacting the Lansing community as of the end of 2013, from a real estate development perspective. Given its orientation on the edge of the Kansas City metropolitan area, the pace and pattern of development in Lansing is influenced by conditions and real estate development patterns in surrounding communities, including Leavenworth, Basehor, Bonner Springs, and Kansas City, Kansas, on the Kansas side of the metro area, as well as Platte City and parts of Kansas City North on the Missouri side of the metro area.

- Development in and near the Legends development in western Kansas City, Kansas has had a significant impact on the local real estate market over the last ten years. The Legends development and associated spin-off development in the vicinity of the Kansas Speedway has changed the exurban nature of the western part of Wyandotte County and surrounding parts of Leavenworth County over the last several years.

- The developments around the Legends have helped to shift part of the overall growth in the metropolitan area to the north and west over the last several years. Prior to the development of the Kansas Speedway and associated developments in the mid 2000s, Wyandotte County experienced very little development at all for many years, as the vast majority of suburban development progressed in Johnson County or Platte and Clay counties. Over the last several years Kansas City, Kansas has reported increased single family detached as well as multi-family development near the Legends, including the area between I-435 and K-7 and to the north of I-70, in Piper and surrounding areas.

- The various retail developments around the Legends included a number of restaurant and retail tenants that serve the overall Wyandotte and Leavenworth county markets. A number of sit-down restaurants and larger format retailers, such as Walmart and Target, draw from adjoining areas in Wyandotte and Leavenworth counties. A number of real estate brokers interviewed as part of the comprehensive planning effort indicated that the presence of various retail tenants in the Legends area, within a 20 minute drive of Lansing, precludes the introduction of additional locations in the Leavenworth County area over the near-term. Essentially, the Legends area is absorbing a good deal of the retail spending market, in various categories, from Lansing and its neighbors in eastern Leavenworth County.

The figure below illustrates the overall drive times from Lansing to surrounding areas. The various retail and restaurant developments in the vicinity of the Legends are within a 20 minute drive of Lansing, and therefore greatly impact the local market.

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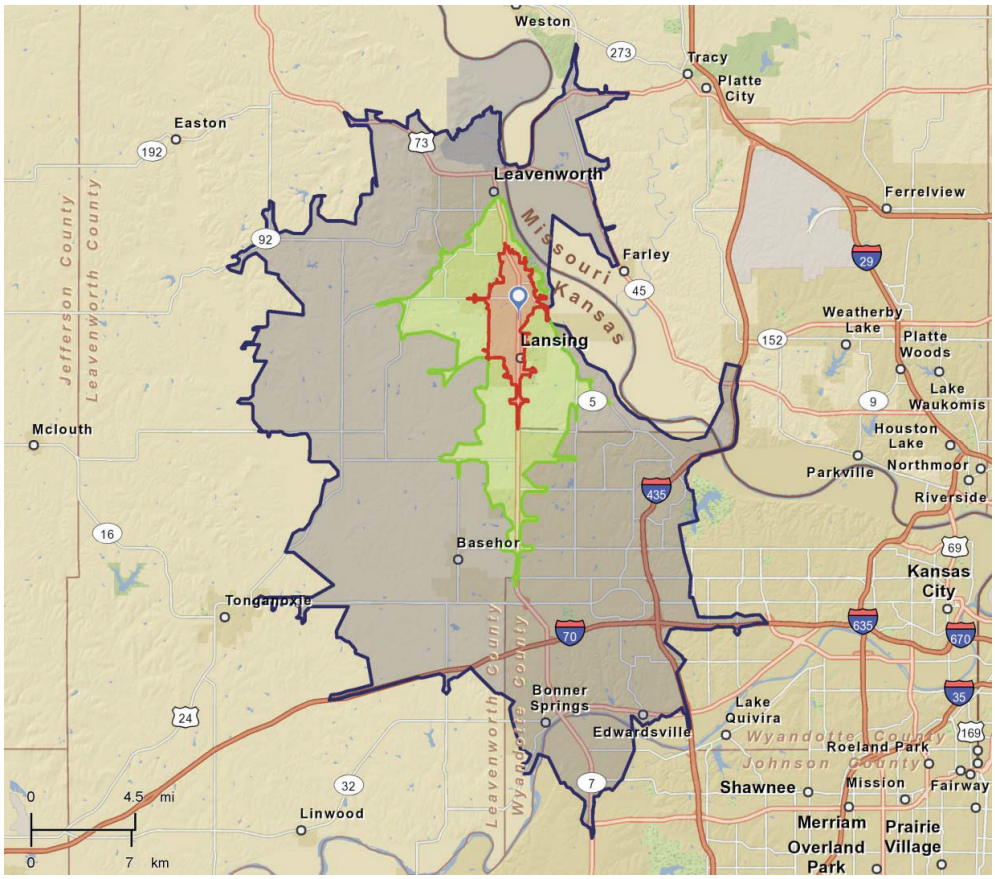

The market for neighborhood serving retail impacting the Lansing market essentially includes developments in the City of Lansing per se as well as adjoining southern sections of the City of Leavenworth.

- Data from ESRI, coupled with discussions with various real estate experts in the local area, reveal that the City is "leaking" retail dollars to other communities across the vast majority of retail sales categories. The City lacks a full service grocery store and at the present time groceries in the southern part of Leavenworth absorb most demand in this category, for example. The City has experienced additional retail development along the K-7 corridor in the form of fast food outlets over the last few years. With the exception of perhaps fast food dining and gasoline and convenience retail, the community is losing retail spending to its neighbors. At the same time, local real estate experts agree that the community is unlikely to attract significant areas of new retail growth over the near term (the next five years) until the community builds a significant level of new population growth. In real estate, retail follows rooftops, and the

community is unlikely to gain significant new retail growth unless it is able to increase the number of households significantly over the next few decades.

- The economic analysis reveals that while its neighboring communities, such as Bonner Springs and Basehor, have reported increased development activity for single family attached units (such as townhomes and duplexes) as well as for apartments over the last few years, activity in Lansing remains more subdued. The analysis revealed that a market would exist in the Lansing area for some additional multi family or single family attached units, however neighboring communities are currently absorbing this market, given the lack of available product in the Lansing area. For example, the Platte City area includes a number of newer townhome projects that are absorbing demand from personnel and trainees stationed at Fort Leavenworth. The lack of available and similar product in the Lansing area has led a number of potential buyers or customers associated with the Fort to instead choose Platte City and the Missouri side of the metro area.

- While Lansing has continued to experience single family development in the western part of the city, the community competes in a relatively crowded market for middle to upper income households with neighboring communities. Families and households seeking traditional single family detached homes may choose from a variety of newer projects in Bonner Springs, Basehor, western Wyandotte County, western Johnson County (including Shawnee and Lenexa) as well as the Northland area (including Platte City and parts of Kansas City North). Furthermore, the Lansing area remains at a competitive disadvantage in terms of drive time to major employment centers in the metro area (including Downtown, KCI, and Johnson County) compared to many of these same communities. Lansing does benefit, however, from its relative proximity to Fort Leavenworth and the strong reputation of the local public school district.

- The lack of a major spark for employment in the southern Leavenworth and Lansing area translates into a very limited office market in the Lansing community. Existing office developments or properties in Lansing primarily serve local serving markets (such as offices designed to serve medical office or professional services tenants such as attorneys or insurance agents). Barring the introduction of a significant source of new employment in the community, the office market in Lansing will likely continue to remain relatively small over time.

- The market for business park or light industrial land uses, similarly, remains very limited in Lansing. The community lacks an inventory of highly marketable light industrial or business park acreage and has generally remained "off the radar" in regional discussions concerning new companies or employment generators. In addition, the Lansing area is generally perceived as lacking good access to the region's major transportation routes. The community lacks direct access to I-435 or I-70 and therefore remains at a competitive disadvantage in this regard compared to Bonner Springs, western Wyandotte County, and communities along I-29 and I-435 in the Northland. At the same time, Lansing lacks adjacency to Fort Leavenworth (compared to areas in the City of Leavenworth) and is less likely to gain employment from defense or military-related companies.

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3. CITY OF LANSING: PROJECTIONS OF FUTURE POPULATION GROWTH AND ASSOCIATED LAND USES

Communities and regions routinely conduct projections of future growth in order to inform planning efforts such as Comprehensive Plan update. These projections are informed by historical trends as well as various assumptions made concerning future growth rates. These projections are a starting point for analysis. In practice, as the Lansing community moves forward and events and economic conditions change, the community should revisit these projections periodically and make revisions as necessary.

The following outlines three scenarios for future population growth over the next 20 years in Lansing. Scenario 1 illustrates projections for population growth, household growth, and employment growth in Lansing based upon projections issued by the Mid American Regional Council for each community in the metropolitan area. Based upon MARC projections, the City of Lansing would gain fewer than 2,000 new residents between 2012 and 2032. Based upon the community's growth rate from 1990 to 2010, however, as outlined in Scenario 2, Lansing would gain around 6,700 new residents over the next 20 years, as well as an additional 3,000 new households and nearly 2,500 additional jobs. Scenario 3 provides an alternative projection for growth, using a "stretch" goal that assumes that Lansing would capture around 1.5 percent of growth in these categories in the overall Kansas City metropolitan area. This growth rate would be on par with growth rates experienced in communities such as Kearney, MO, De Soto, KS, and similar exurban communities in the region over the last 10 to 20 years. Scenario 3 projects total population growth of over 7,000 new residents over the next twenty years.

	Scenario 1 Based on MARC Projections **	Scenario 2 Based on 1990 - 2010 Growth Rate	Scenario 3 Stretch Goal *
Population Growth, 2012 - 2032	1,717	6,714	7,444
Household Growth, 2012 - 2032	848	3,173	3,403
Employment Growth, 2012 - 2032	1,338	2,469	5,494
** Prorated to 20 years			
* Achieving 1.5% capture rate of regional forecast growth			

Source: MARC, Design Workshop

Based upon standard metrics associated with population and employment growth, the tables below illustrate for various land uses the anticipated growth for Lansing over the 2012 to 2032 forecast period.

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	Scenario 1 Based on MARC Projections **	Scenario 2 Based on 1990 - 2010 Growth Rate	Scenario 3 Stretch Goal *
Retail Projected Growth (SF)	34,338	134,276	148,880

	Scenario 1 Based on MARC Projections **	Scenario 2 Based on 1990 - 2010 Growth Rate	Scenario 3 Stretch Goal *
Office / Light Industrial Projected Growth (SF)	267,500	493,728	1,098,750

Given the history of development over the last twenty years in Lansing, Scenario 2 presents the most likely scenario for growth in the community over the next twenty years. Based upon this scenario, the community is likely to absorb between 130,000 and 140,000 additional square feet of retail and around a half million square feet of office or light industrial space over the next twenty years.

The following outlines anticipated growth for residential development, tied directly to the projections for household formation and population growth, in the City of Lansing over the next two decades. The two tables below present two scenarios. One assumes that 80 percent of all residential growth in the community would remain single family detached, and the other assumes that only 70 percent of residential growth in the community would remain single family detached.

	Based on MARC Projections **	Based on 1990 - 2010 Growth Rate	Stretch Goal *
Single Family Detached	678	2,539	2,723
Townhome / Attached Units	42	159	170
Multi-Family Units	127	476	510
Assumes 80% Single Family Detached, 5% Single Family Attached, 15% Multi-Family			

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	Scenario 1B	Scenario 2B	Scenario 3B
	Based on MARC Projections **	Based on 1990 - 2010 Growth Rate	Stretch Goal *
Single Family Detached	593	2,221	2,382
Townhome / Attached Units	85	317	340
Multi-Family Units	170	635	681
Assumes 70% Single Family Detached, 10% Single Family Attached, 20% Multi-Family			

4. TAKEAWAYS FROM LAND USE PROJECTIONS

While the performance of the local and regional economy, coupled with decisions made by local elected officials on a case by case basis, can impact the actual progression of land development over time, the following illustrates some key takeaways from the analysis and projections of future growth in Lansing over the next twenty years. Again, these projections are based upon a growth scenario (Scenario 2) that follows the pattern of growth in the community over the previous 20 year period (1990 to 2010).

The following are takeaways associated with residential growth in Lansing:

- The community is likely continue to grow in terms of single family detached housing development. However, in any marketplace, providing a diverse array of products usually results in a greater level of sales, for a given entity. Similarly, providing a wider range of housing options for prospective residents would likely result in greater population growth in Lansing over the next twenty years.
- The local market in the Kansas City area has seen an increased demand for single family attached and higher density housing marketed to the aging Baby Boomer segment of the population. As this group continues to retire and seek out lower maintenance options for living, townhomes, patio homes, villa homes, and even apartment communities are becoming more popular for Baby Boomer residents. The Lansing community may wish to diversify its housing offering to serve the Baby Boomer and senior citizen market in this part of the Kansas City region. The high quality of life in Lansing, coupled with the offering of products geared more to aging adults, could result in increased demand in the community.
- The economic analysis revealed, similarly, that Platte City and other communities in the Northland have been gaining a sizeable pool of new residents who work or do business with Fort Leavenworth and are seeking out more affordable housing options, including townhomes or even apartments. The Lansing community may wish to offer a wider array of housing geared to students at Fort Leavenworth or enlisted personnel in order to compete more effectively versus the Missouri communities.

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Given the anticipated population growth (in Scenario 2, of around 7,000 new residents) and the anticipated growth of around 150,000 square feet of new, additional retail over the next 20 years, the community is most likely to experience the following types of retail growth:

- Additional restaurants as growth continues, including some sit-down restaurants to serve the southern Leavenworth and Lansing market, as well as continued growth of quick casual or fast food eateries.
- Over the mid to longer term, the area is likely to attract a grocery-anchored retail development to serve new growth. Given the existing patterns of growth, this new shopping area may proceed along K-7 to the south end of Lansing, or even one to two miles to the west of K-7, to serve new growth areas in western Lansing and western Leavenworth.
- Additional growth of in-line retailers, including pharmacies, a hardware store, or other small businesses.
- Overall, the projected growth rate for retail for Lansing equates to an additional two to perhaps three new shopping plazas or centers over the next twenty years.

The following outlines takeaways associated with office or employment growth:

- Barring the development of a new transportation route to serve Lansing (such as the upgrade of K-5 to a higher capacity road to connect with I-435 and therefore provide Lansing with greater access to the metro area), office growth will likely continue to move forward in the form of small developments serving smaller companies, as well as office growth associated with medical office or other local serving needs.
- The introduction of a new K-5 connection, along with a new business park development, could present opportunities for Lansing to attract a number of larger employers seeking a location in a community with good schools, combined with convenient access to the regional market. The creation of a direct link to I-435 from Lansing would significantly improve access from the community to Kansas City International Airport. This access would put Lansing at a competitive advantage, in terms of access, compared to many other communities on the Kansas side of the metro area (including communities farther to the south in Johnson County).
- The degree of office and business park development the community experiences would depend largely on the success of the community in developing a new business or industrial park, perhaps in the southeastern part of the community. As mentioned, Lansing currently lacks a sizeable acreage or pool of land for business development and is not part of regional discussions concerning new companies looking around the area. The community should consider moving forward with a formal business park and with a better developed business recruitment strategy in order to drive increased growth in office and business park uses.

Memorandum

Date: July 22, 2014

To: Confluence

From: Andrew Reid, EIT

Subject: City of Lansing Comprehensive Plan, Future Lansing Regional Airport Traffic Impact Analysis

At the request of Caitlin Henricksen, Burns & McDonnell analyzed the roadway network and future access roads to the proposed City of Lansing, Kansas general aviation airport. The work was completed to support the development of the 2030 Vision and Comprehensive Plan. The area evaluated included the development trip generation, Gilman Road, McIntyre Road, and Kansas Highway 5.

The objective of the study was to determine if the future roadway classification of Gilman and McIntyre Road within the city of Lansing limits is sufficient for the future proposed site of the city of Lansing's general aviation airport. Traffic along Gilman and McIntyre Road will be analyzed using data provided by the City of Lansing from 2013 and using HCS 2010 software. Traffic from the facility will also be projected to 2030 volumes to capture the roadway in the ultimate condition, assuming no geometric improvements.

Location and Site Information

The future airport location can be found in the Lansing 2013 Comprehensive plan and is found within the boundaries of Section 29 and Section 32, Township 9, Range 23. The site will border K-5 on the East, McIntyre Road on the South, and the West boundary of Section 29 & 32 to the West.

It is anticipated that the airport will have access from the West and East side. The three access roads points will be located off of K-5, McIntyre Road, and Gilman Road.

Currently Gilman and McIntyre Road are designated as local streets with roadway widths of 28' or less. There is no access control and both roadway surfaces consist of gravel.

K-5 is a state owned and maintained Class III highway as defined by the Highway Capacity Manual (HCM). This two-lane roadway has no access control and no apparent shoulders through the area where an access to the airport would be constructed.

Existing Traffic Volumes	2013 AADT
Gilman Rd	1,135
McIntyre Rd	821
K-5	2,000

Memorandum *(continued)*

Future Airport Site Development

As part of the Lansing Comprehensive Plan, both Gilman and McIntyre Road will be reclassified as collectors. These facilities will have a future width of 36' to 44' with 2 to 3 lanes. These roadway sections will have a 60' R/W and the projected capacity to handle 1,500 to 2,000 vehicles daily.

To project future volume growth on the access roads to the airport, the Institute of Transportation Engineers Trip Generation Manual was used to determine what additional volumes would be anticipated to be generated. The table and chart from the Trip Generation Manual as applied for this study is included in the appendix. The trip generation formula is based on a best fit equation that plots number of employees versus the average vehicle trip ends. There were 6 studies completed with a directional distribution of 50% entering and 50% exiting. Information used in the Manual was collected in a 24-hour count period during a typical weekday.

For purposes of this evaluation, it was assumed that there would be 50 employees at the airport. This takes into consideration other airport facilities of similar size and local population density. Using the fitted curve equation, T=13.29(X) +102.99, it was found that 768 trips, equally distributed entering and exiting, would be generated daily.

An annual growth factor of 1.5% was applied to project future traffic, yielding a seventeen-year growth of 29% for all analyzed segments. This future growth factor was used based upon the Lansing Comprehensive Plan, Market Analysis Summary.

Traffic Volumes	AADT
	2030 (Est) *
Gilman Rd	1,718
McIntyre Rd	1,314
K-5	2,833

*Assumes 33% trip distribution split for airport traffic

Future Airport Access Analysis

The results of the capacity analysis are tabulated below, sorted by each roadway that is assumed to have an access point into the airport. Levels of services were calculated based upon 2013 traffic data and the projected 2030 volumes. Only mainline volumes were collected from these segments and no turning movements or peak hour counts were collected. It is assumed that the directional split of traffic is 50/50 with a 3% heavy vehicle volume. Data was available on K-5 for heavy vehicle volumes and a rate of 5% percent will be used. Terrain can be classified as level on McIntyre and Gilman Rd but will be classified as rolling on K-5. No peak hour data is

Memorandum *(continued)*

available and a default Peak Hour Factor (PHF) of 0.92 for a similar facility from the HCM will be used.

Intersections were not evaluated for delay and LOS as there is not sufficient data available to complete this analysis.

Level of Service (LOS)	Classification	
	2013	2030 (Est) *
Gilman Rd	A	A
McIntyre Rd	A	A
K-5	A	B

*Assumes 33% trip distribution split for airport traffic

Recommendation

Based on the site and adjacent access roadway analysis of City of Lansing General Aviation Airport in the City of Lansing, it is recommended that Gilman Rd or McIntyre Road remain classified as a collector as currently proposed. Traffic distribution will also find alternative routes to and from the airport as the traffic proximity moves further away from the facility. This will further help to lower the expected demand of the immediate airport access road network and alleviate concerns that these roads will require reclassification in the future.

It should be noted that both facilities are currently unpaved roadway surfaces. As the airport traffic is generated, it is unknown how these additional equivalent single axel units (ESAL) will impact the gravel. It is recommended that before any construction begins a geotechnical pavement report should be completed to determine if an asphalt or concrete surface is required for the additional loading.

AWR

cc: Jason Meyers, P.E.

Memorandum *(continued)*

CAPACITY ANALYSIS OUTPUT

HCS 2010: Two-Lane Highways Release 6.60

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	McIntyre Rd
From/To	Airport to K-7
Jurisdiction	
Analysis Year	2013
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 18 veh/h
Opposing direction volume, Vo 18 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.974		0.974	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	20	pc/h	20	pc/h

Free-Flow Speed from Field Measurement:			
Field measured speed, (note-3) S FM		-	mi/h
Observed total demand, (note-3) V		-	veh/h
Estimated Free-Flow Speed:			
Base free-flow speed, (note-3) BFFS		45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS		4.2	mi/h
Adj. for access point density, (note-3) fA		1.5	mi/h
Free-flow speed, FFSd		39.3	mi/h
Adjustment for no-passing zones, fnp		2.4	mi/h
Average travel speed, ATSd		36.6	mi/h
Percent Free Flow Speed, PFFS		93.1	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.985		0.985	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	20	pc/h	20	pc/h
Base percent time-spent-following,(note-4) BPTSFd	2.5	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	28.8	%		

Level of Service and Other Performance Measures		
Level of service, LOS	A	
Volume to capacity ratio, v/c	0.01	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	36.6	mi/h
Percent time-spent-following, PTSFd (from above)	28.8	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	19.6
Effective width of outside lane, We	22.92
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	1.17
Bicycle LOS	A

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.60

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	Gilman Rd
From/To	Airport to K-7
Jurisdiction	
Analysis Year	2013
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd 24 veh/h
Opposing direction volume, Vo 24 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.974		0.974	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	27	pc/h	27	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	2.0	mi/h
Free-flow speed, FFSd	38.8	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	36.0	mi/h
Percent Free Flow Speed, PFFS	92.7	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.985		0.985	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	26	pc/h	26	pc/h
Base percent time-spent-following,(note-4) BPTSFd	3.3	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	29.6	%		

Level of Service and Other Performance Measures		
Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	36.0	mi/h
Percent time-spent-following, PTSFd (from above)	29.6	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	26.1
Effective width of outside lane, We	22.56
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	1.38
Bicycle LOS	A

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.60

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	K-5
From/To	127th to McIntyre
Jurisdiction	
Analysis Year	2013
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	5	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 42 veh/h
Opposing direction volume, Vo 42 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.922		0.922	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	74	pc/h	74	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	47.3	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	43.7	mi/h
Percent Free Flow Speed, PFFS	92.4	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.976		0.976	
Grade adjustment factor,(note-1) fg	0.73		0.73	
Directional flow rate,(note-2) vi	64	pc/h	64	pc/h
Base percent time-spent-following,(note-4) BPTSFd	7.7	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	34.0	%		

Level of Service and Other Performance Measures		
Level of service, LOS	A	
Volume to capacity ratio, v/c	0.04	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1050	veh/h
Capacity from PTSF, CdPTSF	1188	veh/h
Directional Capacity	1050	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.7	mi/h
Percent time-spent-following, PTSFd (from above)	34.0	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	45.7
Effective width of outside lane, We	21.48
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	2.40
Bicycle LOS	B

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.60

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	McIntyre Rd
From/To	Airport to K-7
Jurisdiction	
Analysis Year	2030
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 28 veh/h
Opposing direction volume, Vo 28 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.974		0.974	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	31	pc/h	31	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	39.3	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	36.4	mi/h
Percent Free Flow Speed, PFFS	92.7	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.985		0.985	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	31	pc/h	31	pc/h
Base percent time-spent-following,(note-4) BPTSFd	3.9	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	30.2	%		

Level of Service and Other Performance Measures		
Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	36.4	mi/h
Percent time-spent-following, PTSFd (from above)	30.2	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	30.4
Effective width of outside lane, We	22.32
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	1.51
Bicycle LOS	B

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	Gilman Rd
From/To	Airport to K-7
Jurisdiction	
Analysis Year	2030
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd 36 veh/h
Opposing direction volume, Vo 36 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.974		0.974	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	40	pc/h	40	pc/h

Free-Flow Speed from Field Measurement:			
Field measured speed, (note-3) S FM		-	mi/h
Observed total demand, (note-3) V		-	veh/h
Estimated Free-Flow Speed:			
Base free-flow speed, (note-3) BFFS		45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS		4.2	mi/h
Adj. for access point density, (note-3) fA		2.0	mi/h
Free-flow speed, FFSd		38.8	mi/h
Adjustment for no-passing zones, fnp		2.4	mi/h
Average travel speed, ATSd		35.8	mi/h
Percent Free Flow Speed, PFFS		92.2	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.985		0.985	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	40	pc/h	40	pc/h
Base percent time-spent-following,(note-4) BPTSFd	4.9	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	31.2	%		

Level of Service and Other Performance Measures		
Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	35.8	mi/h
Percent time-spent-following, PTSFd (from above)	31.2	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	39.1
Effective width of outside lane, We	21.84
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	1.75
Bicycle LOS	B

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.60

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Andrew Reid
Agency/Co.	
Date Performed	7/16/2014
Analysis Time Period	
Highway	K-5
From/To	127th to McIntyre
Jurisdiction	
Analysis Year	2030
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.92	
Shoulder width	0.0	ft	% Trucks and buses	5	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 60 veh/h
Opposing direction volume, Vo 60 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.922		0.922	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	106	pc/h	106	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	47.3	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	43.1	mi/h
Percent Free Flow Speed, PFFS	91.2	%

Percent Time-Spent-Following				
Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5*		1.5*	
PCE for RVs, ER	1.2*		1.2*	
Heavy-vehicle adjustment factor, fHV	0.976		0.976	
Grade adjustment factor,(note-1) fg	0.73		0.73	
Directional flow rate,(note-2) vi	92	pc/h	92	pc/h
Base percent time-spent-following,(note-4) BPTSFd	10.8	%		
Adjustment for no-passing zones, fnp	52.6			
Percent time-spent-following, PTSFd	37.1	%		

Level of Service and Other Performance Measures		
Level of service, LOS	B	
Volume to capacity ratio, v/c	0.06	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1050	veh/h
Capacity from PTSF, CdPTSF	1188	veh/h
Directional Capacity	1050	veh/h

Passing Lane Analysis		
Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.1	mi/h
Percent time-spent-following, PTSFd (from above)	37.1	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane		
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane		
Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	65.2
Effective width of outside lane, We	20.40
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	2.80
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Memorandum *(continued)*

INSTITUTE OF TRANSPORATION ENGINEERS

LAND USE CODE (022) – GEN AVIATION AIRPORT TRIP GENERATION

General Aviation Airport
(022)

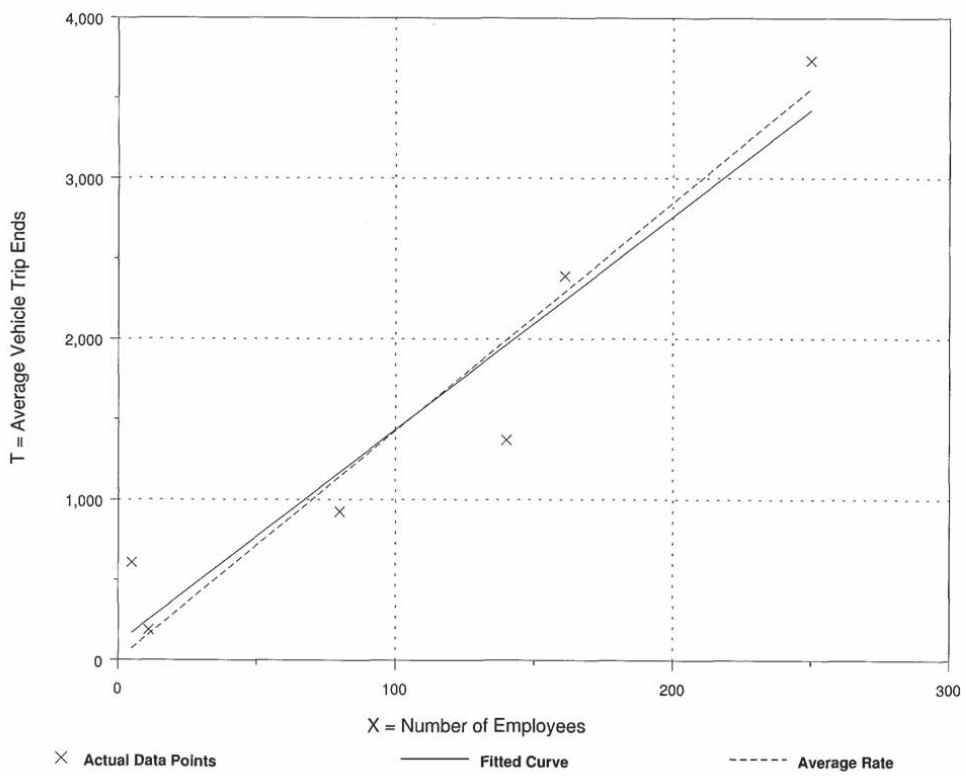
Average Vehicle Trip Ends vs: Employees
On a: Weekday

Number of Studies: 6
Avg. Number of Employees: 108
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
14.24	9.79 - 122.00	10.46

Data Plot and Equation

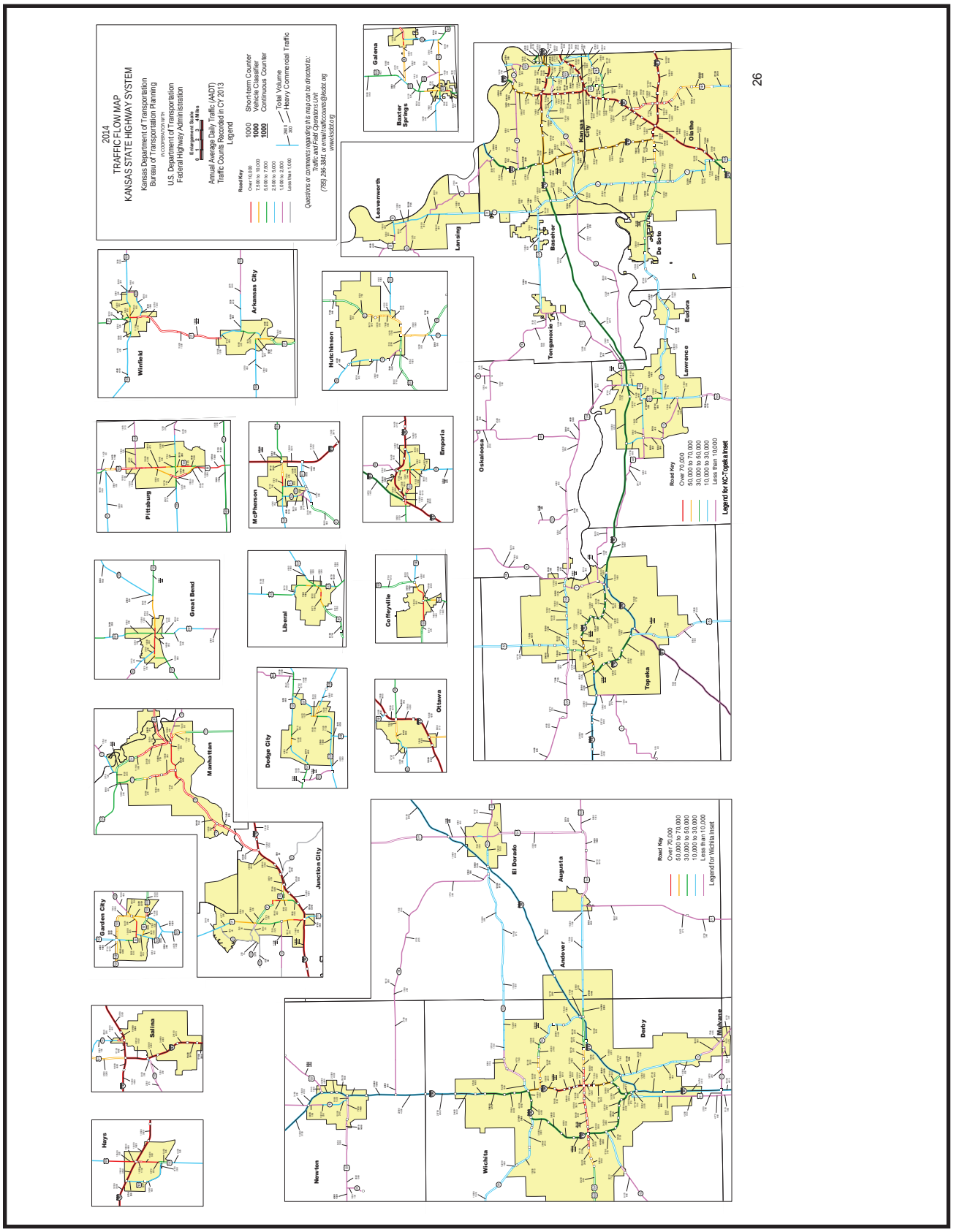


Fitted Curve Equation: T = 13.29(X) + 102.99

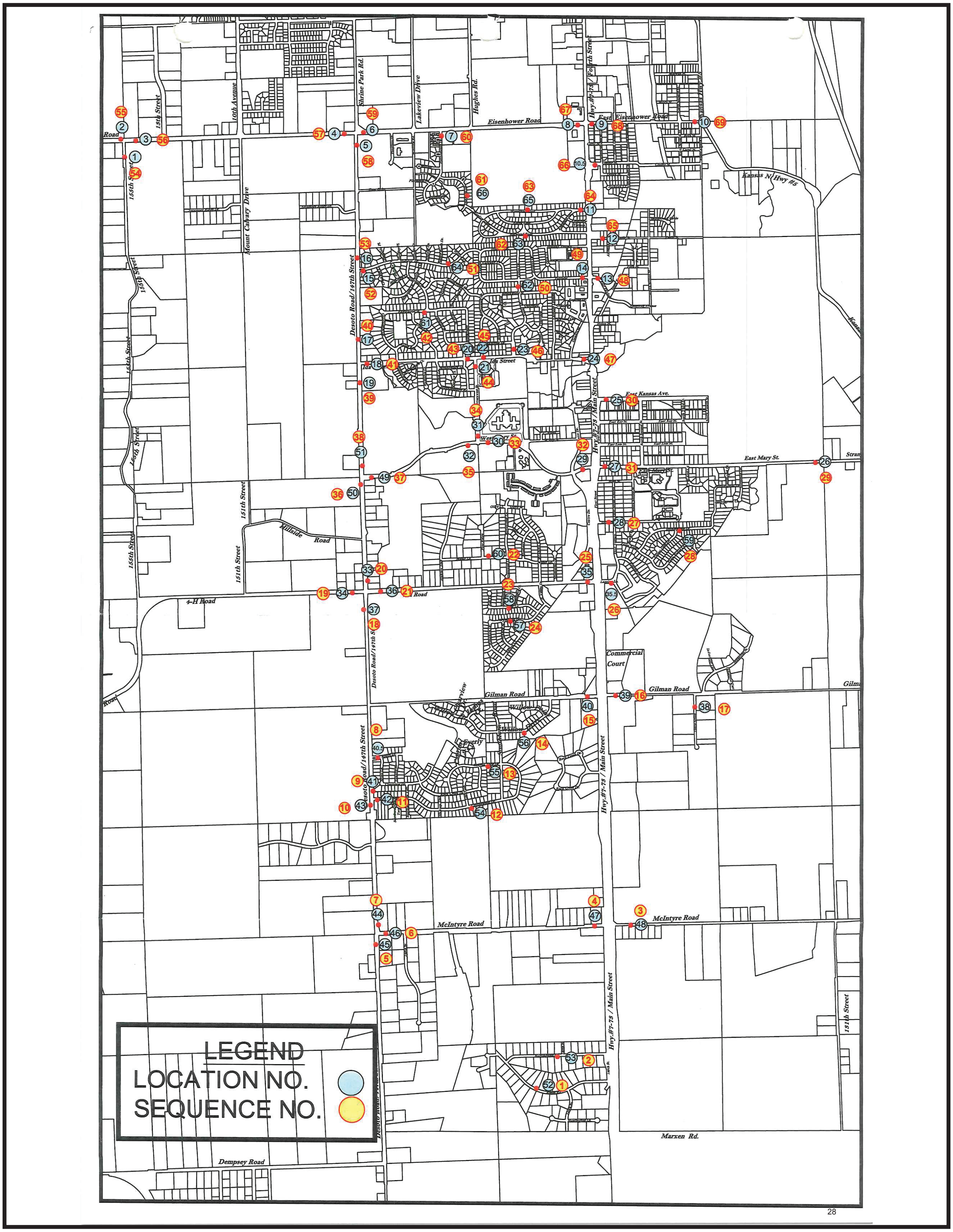
R^2 = 0.92

Memorandum *(continued)*

TRAFFIC COUNTS


2014
TRAFFIC FLOW MAP
KANSAS STATE HIGHWAY SYSTEM
Kansas Department of Transportation
Bureau of Transportation Planning
in cooperation with
U.S. Department of Transportation
Federal Highway Administration
Enlargement Scale
Miles
Annual Average Daily Traffic (AADT)
Traffic Counts Recorded in CY 2013
Legend
Road Key
Over 110,000
70,000 to 110,000
50,000 to 70,000
30,000 to 50,000
10,000 to 30,000
Less than 10,000
1000 Short-term Counter
1000 Vehicle Classifier
1000 Continuous Counter
Total Volume
Heavy Commercial Traffic
Questions or comments regarding this map can be directed to:
Traffic and Field Operations Unit
(785) 296-3841 or e-mail trafficcounts@ksdot.org
www.ksdot.org
Galena
Baxter Springs
Leavenworth
Lansing
Kansas City
Olathe
De Soto
Eudora
Lawrence
Tonganoxie
Basehor
Oskaloosa
Topeka
Legend for KC-Topeka Inset
Arkansas City
Winfield
Hutchinson
Pittsburg
McPherson
Emporia
Great Bend
Liberal
Coffeyville
Dodge City
Ottawa
Manhattan
Junction City
Garden City
Salina
Hays
El Dorado
Augusta
Andover
Derby
Wichita
Newton
Legend for Wichita Inset

SEQ.	NO.	Date Set	Date Removed	Placement Location	Total Traffic	Total Hrs	Vehicles Per Hr.	Vehicles Per Day	Posted Speed	Avg Speed	50th %	85th %	Max. Speed
1	52	6/10/2013	6/12/2013	14144 Robin Rd. on Light Pole #B12872	272	48	5.67	136	30	17.74	15	27	67
2	53	6/12/2013	6/14/2013	14115 Notingham Dr. Light Pole #B12865	393	48.25	8.15	195	30	24.01	25	33	45
3	48	6/14/2013	6/17/2013	E. McIntyre E. of HWY 7 on Truck Route Sign Post	2437	71.25	34.20	821	35	26.81	28	35	66
4	47	6/17/2013	6/19/2013	W. McIntyre W. of HWY 7 on Share The Road Sign Post	1558	48.25	32.29	775	35	32.14	33	37	56
5	45	6/19/2013	6/21/2013	147th S. of W. McIntyre on Truck Route Sign Post	1842	47.5	38.78	931	40	36.92	38	43	71
6	46	6/21/2013	6/24/2013	W. McIntyre E. of 147th on Share the Road Sign Post	3658	72	50.81	1219	35	33.24	34	44	75
7	44	6/24/2013	6/26/2013	147th N. of W. McIntyre on Share the Road Sign Post	3833	47.75	80.27	1927	40	36.65	40	46	72
8	40.5	6/26/2013	6/26/2013	Ridge Dr. Speed Limit Sign S. Side	1633	47.75	34.20	821	20	13.6	12	18	30
9	41	6/28/2013	7/8/2013	147th North of Cottonwood on Speed limit sign post	5738	84	68.31	1639	40	38.64	40	46	67
10	43	7/8/2013	7/10/2013	147th s. of Cottonwood on Speed Limit Sign Post	2469	46.25	53.38	1281	40	42.12	43	48	68
11	42	7/10/2013	7/12/2013	Cottonwood East of 147th on No Parking Sign Post	1681	48.25	34.84	836	20	21.58	22	27	40
12	54	7/12/2013	7/15/2013	604 Cottonwood Dr. on Speed Limit Sign Post	1963	71.25	27.55	661	20	18.81	19	25	41
13	55	7/15/2013	7/17/2013	609 Canyon View Dr. on Speed Limit Sign Post	2032	47.75	42.55	1021	20	16.79	15	23	51
14	56	7/17/2013	7/19/2013	120 Willow Dr. on Speed Limit Sign Post	3175	48	66.15	1588	20	22.12	23	27	37
15	40	7/19/2013	7/22/2013	Gilman Rd. West of HWY 7 on Speed Limit Sign Post	4260	71.75	59.37	1425	35	26.81	28	32	49
16	39	7/22/2013	7/24/2013	Gilman Rd. East of HWY 7 on Truck Route Sign Post	2269	48	47.27	1135	35	34.9	36	41	55
17	38	7/24/2013	7/26/2013	136th South of Gilman on Stop Sign Post	1037	48.25	21.49	516	35	21.97	22	29	47
18	37	7/26/2013	7/29/2013	147th South of 4H on Speed Limit Sign Post	6144	71.5	85.93	2062	40	34.47	35	39	53
19	34	7/29/2013	7/31/2013	4H West of 147th on Truck Route Sign Post	2536	47.75	53.11	1275	40	39.1	42	48	67
20	33	7/31/2013	8/2/2013	DeSoto North of 4H on No Truck Route Sign Post	8359	48	174.15	4180	35	30.56	31	35	49
21	36	8/2/2013	8/5/2013	4H East of 147th on Speed Limit Sign Post	8841	72	122.79	2947	40	38.47	39	44	69
22	60	8/5/2013	8/7/2013	601 Maple Ln. on Speed Limit Sign Post	744	48	15.50	372	25	18.84	17	28	48
23	58	8/7/2013	8/9/2013	401 Ash Ln. on Speed Limit Sign Post	570	48.25	11.81	284	20	16.82	16	22	36
24	57	8/9/2013	8/12/2013	905 Wyndham Dr. on Speed Limit Sign Post	2600	71.75	36.24	870	20	18.5	18	22	51
25	35	8/12/2013	8/14/2013	4H West of HWY 7 on Truck Route Sign Post	12182	48	253.79	6091	40	28.12	30	36	62
26	35.5	8/14/2013	8/16/2013	Lansing Ln. Stop Sign S. Side at City Hall Entrance	6280	47.5	132.21	3173	20	16.88	16	22	36
27	28	8/16/2013	8/19/2013	Olive St. East of HWY 7 on Speed Limit Sign Post	7317	72	101.63	2439	20	18.16	19	23	39
28	59	8/19/2013	8/21/2013	431 Hithergreen Dr. on Speed Limit Sign Post	814	48.25	16.87	405	20	18.58	19	25	39
29	26	8/21/2013	8/23/2013	E. Mary at City Limits on Share the Road Sign Post	3970	47.25	84.02	2017	35	34.99	36	44	73
30	25	8/23/2013	8/26/2013	E. Kansas on Speed Limit Sign Post	5251	72.25	72.68	1744	20	20.45	21	25	50
31	27	8/26/2013	8/28/2013	E. Mary East of HWY 7 on Speed Limit Sign Post	8054	48	167.79	4027	20	20.78	21	25	44
32	29	8/28/2013	8/30/2013	W. Mary West of K-7 on ON Adopt-A-Street Sign Post	6546	45.5	143.87	3453	35	24.17	25	31	46
33	30	8/30/2013	9/3/2013	W. Mary East of Bittersweet on Speed Limit Sign Post	5064	76	66.63	1599	35	27.69	29	36	51
34	31	9/3/2013	9/5/2013	Bittersweet North of W. Mary on No Parking Sign Post	5887	51.25	114.87	2757	25	20.36	20	27	60
35	32	9/5/2013	9/7/2013	W. Mary West of Bittersweet on End of School Zone Sign Post	2757	44.5	61.96	1487	35	31.32	32	38	51
36	50	9/7/2013	9/9/2013	DeSoto South of W. Mary on Speed Limit Sign Post	8666	47.25	183.41	4402	35	37.41	38	42	63
37	49	9/9/2013	9/11/2013	W. Mary East of DeSoto Rd. on Adopt-A-Street Sign Post	2858	49	58.33	1400	35	30.61	31	36	64
38	51	9/11/2013	9/13/2013	DeSoto North of W. Mary on Speed Limit Sign Post	10385	49	211.94	5087	35	35.82	36	41	59
39	19	9/13/2013	9/16/2013	DeSoto South of Ida on Share The Road Sign Post	19671	70.25	280.01	6720	35	36.59	37	41	65
40	17	9/16/2013	9/18/2013	DeSoto North of Ida on Share The Road Sign Post	12042	47.5	253.52	6084	35	34.03	35	39	62
41	18	9/18/2013	9/20/2013	Ida St. East of DeSoto RD on Speed Limit Sign Post	6592	50	131.84	3164	25	23.72	24	29	49
42	61	9/20/2013	9/23/2013	809 Englewood Dr. on Speed Limit Sign Post	537	70.25	7.64	183	20	16.25	15	22	34
43	20	9/23/2013	9/26/2013	Ida St. West of Brookridge on End of School Zone Sign Post	7640	76.25	100.20	2405	25	24.49	25	29	42
44	21	9/26/2013	9/30/2013	Bittersweet South of Ida on Speed Limit Sign Post	4862	79.75	60.97	1463	25	19.82	20	26	50
45	22	9/30/2013	10/2/2013	Ida West of Bittersweet on School Crossing Sign Post	4784	46.75	102.33	2456	25	22.77	23	28	47
46	23	10/2/2013	10/4/2013	Valley North of Ida on No Parking Sign Post	1918	49.25	38.94	935	20	17.63	18	22	34
47	24	10/4/2013	10/7/2013	Ida St. West of HWY 7 on Speed Limit Sign Post	7665	72.5	105.72	2537	25	22.62	23	28	44
48	13	10/7/2013	10/9/2013	East Fairlane East of HWY 7 on No Parking Sign Post	2700	47.5	56.84	1364	25	20.12	21	25	35
49	14	10/9/2013	10/11/2013	West Fairlane West of HWY 7 on Speed Limit Sign Post	3611	48	75.23	1806	20	22.04	22	27	39
50	62	10/11/2013	10/14/2013	424 Valley Dr. on Speed Limit Sign Post	3889	74.5	52.20	1253	20	17.67	18	23	46
51	64	10/16/2013	10/18/2013	702 Holiday Dr. on Speed Limit Sign Post	2370	47.5	49.89	1197	20	20.58	21	25	36
53	15	10/18/2013	10/21/2013	Holiday Dr. E. of DeSoto Rd. on Ped. Crossing Sign Post	5350	69.25	77.26	1854	20	22.73	23	27	44
52	63	10/14/2013	10/16/2013	216 Highland Rd. on Speed Limit Sign Post	775	45.25	17.13	411	20	20.66	21	26	37
54	16	10/21/2013	10/23/2013	DeSoto Rd. North of Holiday Dr. on Speed Limit Sign Post	13003	48	270.90	6502	35	35.17	36	40	56
55	1	10/23/2013	10/28/2013	155th South of W. Eisenhower on Road Narrows Sign Post	1616	75.75	21.33	512	25	31.53	32	39	69
56	2	10/28/2013	10/30/2013	W. Eisenhower W. of 155th on Speed Limit Sign Post	13793	47.75	288.86	6933	40	41.89	42	46	68
57	3	10/30/2013	11/1/2013	W. Eisenhower East of 155th on Speed Limit Sign Post	13115	48.25	271.81	6524	40	39.89	40	45	71
58	4	11/1/2013	11/4/2013	W. Eisenhower West of DeSoto Rd. on Speed Limit Sign Post	33349	72.5	459.99	11040	40	34.96	36	42	67
59	5	11/4/2013	11/6/2013	DeSoto Rd. South of W. Eisenhower on No littering Sign Post	14609	47.25	309.19	7420	35	32.01	32	37	51
60	6	11/6/2013	11/12/2013	W. Eisenhower East of DeSoto Rd. on Speed Limit Sign Post	28963	73.5	394.05	9457	40	38.54	39	43	72
61	7	11/12/2013	11/18/2013	N. Pebble Beach Dr. on Speed Limit Sign Post	4773	67.5	70.71	1697	20	20.79	21	27	51
62	66	11/18/2013	11/25/2013	908 Oakmont Dr. on Speed Limit Sign Post	2638	70.25	37.55	901	20	20.04	20	24	36
63	65	11/25/2013	11/27/2013	132 Woodland Rd. on Speed Limit Sign Post	449	48.25	9.31	223	20	21.85	23	27	39
64	11	11/27/2013	11/29/2013	105 Woodland Dr. on Speed Limit Sign Post	941	48.5	19.40	466	20	21	22	27	40
65	12	11/29/2013	12/2/2013	Speed Limit Sign Post Emile St.	1200	64.75	18.53	445	20	21.41	22	25	37
66	10.5	12/2/2013	12/6/2013	Connie St. Speed Limit Sign S. Side	2750	72.25	38.06	913	20	19.56	20	25	46
67	8	12/6/2013	12/9/2013	W. Eisenhower West of HWY 7 on Share The Road Sign Post	16230	53.25	304.79	7315	40	36.99	37	42	60
68	9	12/9/2013	12/9/2013	E. Eisenhower East of HWY 7 on Share the Road Sign Post	5217	64.75	80.57	1934	35	26.77	28	33	51
69	10	12/12/2013	12/16/2013	E. Eisenhower West of HWY 5 on Speed Limit Sign Post	3117	39	79.92	1918	35	27.06	28	35	59


LEGEND
LOCATION NO.
SEQUENCE NO.
Eisenhower Road
East Eisenhower Road
Kansas N Hwy #5
Shrine Park Rd.
Lakeview Drive
Hughes Rd.
10th Avenue
Mount Calvary Drive
155th Street
151th Street
Desoto Road/147th Street
Hwy.#7-73 / Main Street
Ida Street
East Kansas Ave.
East Mary St.
Hillside Road
4-H Road
Commercial Court
Gilman Road
McIntyre Road
Marxen Rd.
Dempsey Road
28

Memorandum

Date: July 22, 2014

To: Confluence

From: Andrew Reid, EIT

Subject: City of Lansing Comprehensive Plan, K-7 & Eisenhower Road Traffic Impact Analysis

At the request of Caitlin Henricksen, Burns & McDonnell analyzed existing traffic data and evaluated the potential impacts for future traffic growth projections along two main corridors within the city limits of Lansing, Kansas. The work was completed to support the development of the 2030 Vision and Comprehensive Plan. The area evaluated included the main North/South road, K-7/US-73, and main East/West road, Eisenhower Road, in the City.

The objective of the study was to identify potential areas of congestion and possible improvements to reduce current travel time through the area in both directions. Traffic along K-7/US-73 was evaluated based on data from 2008 and traffic along Eisenhower Road was evaluated based upon data from 2013. Using the projected growth rate, the traffic was then normalized to 2013 and future 2030 volumes to calculate the Level of Service (LOS).

Existing Lane Geometry and Information

K-7/US-73 carries four lanes through the evaluation limits as follows:

- Marxen Rd to 4-H Road - 4 lanes divided with limited access control.
- 4-H Road to Eisenhower Road – 4 lanes undivided with Two-Way Left Turn Lane (TWLTL) and limited access control.

Eisenhower Road is an un-divided 4-lane section with no access control.

All traffic signals along K-7/US-73 operate in protected + permitted left-turn phasing mode for mainline movements. The traffic signals along Eisenhower Road operate in permitted phasing only for mainline left-turn movements. Both segments analyzed lie adjacent to residential, retail/light industrial, and civic zoned land use areas. Based upon observation and institutional knowledge of the corridors, it will be assumed that free flow speeds are generally 5 mph greater than the posted speed limits.

All analyses was completed on a no-build basis, assuming the current geometry will be maintained through 2030 on both roadway segments.

Existing Traffic Volumes

Memorandum *(continued)*

Traffic volume data was provided by the City of Lansing. The latest data available along K-7/US-73 is an annual average daily traffic from 2008 and was posted to the City's website. The KDOT state traffic map does have data available for 2013 at one count station within the evaluation limits. However this data was not used in the evaluation as the exact location of the count could not be identified. Data along Eisenhower Road was collected in 2013 and was collected as part of the development of the Comprehensive Plan. No seasonal or monthly adjustment factor was applied to either data set and it is assumed that the distribution for each count and bound is 50/50. No peak hour data is available and a default Peak Hour Factor (PHF) for a similar facility from the Highway Capacity Manual (HCM) will be used. Data sets have been summarized and projected to future values in the tables below.

K-7 / US-73 Traffic Volumes		AADT		
Begin	**End**	**2008**	**2013 (Est)**	**2030 (Est)**
Marxen Rd	McIntyre Rd	20,500	22,085	28,446
McIntyre Rd	4-H Rd	20,600	22,193	28,586
4-H Rd	Ida St	22,475	24,212	31,186
Ida St	Eisenhower Rd	20,600	22,193	28,586

Eisenhower Road Traffic Volumes		AADT	
Begin	**End**	**2013**	**2030 (Est)**
155th St	10th Ave	6,933	8,930
10th Ave	Desoto Rd	6,524	8,404
Desoto Rd	Hughes Rd	7,420	9,558
Hughes Rd	K-7/ US-73	7,315	9,422

It is assumed that the peak traffic occurs in the morning between 7:00-9:00am and between 4:00-6:00pm with an even distribution in both directions. Highway Capacity Software (HCS) will automatically adjust the volumes to evaluate the possibility of the traditional 60/40 distribution. A default PHF of 0.92 and heavy vehicle daily traffic (HVDT) of 3% was used in the analysis to match the HCM default values for a similar classification of roadway. The full data set of traffic is provided in an appendix to this memo.

Significant changes in the geometry of adjacent and intersection roadways would have a large effect on the traffic volumes used to analyze these corridors for future values. Future land use plans show K-5 bypassing the City of Lansing and many intersecting roadways will be widened to include additional thru or turn lanes. These projected improvements were not included in the

Memorandum *(continued)*

analysis. Likewise, pedestrian and bicycle volumes were not available or included in the analyses.

Future Traffic

For the purposes of developing future year traffic, an annual growth factor of 1.5% was applied, yielding a seventeen-year growth of 29% for all analyzed segments. This future growth factor was used based upon the Lansing Comprehensive Plan, Market Analysis Summary.

Capacity Analysis Methodology

Capacity analysis was completed to establish level of service (LOS) using the software program HCS 2010. HCS analyzes data based on the methods prescribed in the Highway Capacity Manual (HCM) 2010 which defines LOS as a measure of delay. HCM also calculates delay and LOS by an algorithm that accounts for the potential effects of proximate intersections. However, due to the lack of available turning movement counts, intersection evaluations were not completed. LOS is described with letter designations A (best) through F (worst). The analysis was completed under the existing lane geometry for all analysis models, including the future 2030.

For the two analyses, the HCM 2010 MULTILANE module was used instead of the traditional STREETS module. MULTILANE will evaluate delay on a segment basis based upon the volumes and capacity. The STREETS module will analyze segment capacity, delay, and queuing but without turning movement volumes, this would not be the best approach for the evaluation and is why MULTILANE was selected as the preferred module. Using HCS MULTILANE 2010, segments with a free-flow speed of 42.5 mph or less are not calculated. Calculated free-flow speeds below this threshold are considered street and arterial evaluations and would require an analysis using turning movement counts, peak hour counts, and additional mainline traffic forecasts. Along Eisenhower Road, there are a significant number of access points which will reduce the FFS below 42.5 mph. The number of access point that would take the free-slow speed below 42.5 mph were excluded from the calculation.

Findings- Level of Service (LOS)

The results of the capacity analysis are tabulated below which are broken down into the logical and natural breaks in the corridor as identified in the traffic volume data. The summary includes the results of the HCS 2010 (using HCM 2010 methodology) analysis for the last year the traffic data is available, the normalized analysis for 2013, and the projected 2030 analysis. As discussed, since there is an assumed 50/50 traffic distribution, LOS output is only provided for the segment and not each bound or intersections.

Memorandum *(continued)*

K-7 / US-73 Segment LOS Analysis		Level of Service		
Begin	**End**	**2008 LOS**	**2013 LOS (Est)**	**2030 LOS (Est)**
Marxen Rd	McIntyre Rd	A	A	A
McIntyre Rd	4-H Rd	A	A	A
4-H Rd	Ida St	A	A	A
Ida St	Eisenhower Rd	A	A	A

Eisenhower Road Segment LOS Analysis		Level of Service	
Begin	**End**	**2013 LOS**	**2030 LOS (Est)**
155th St	10th Ave	A	A
10th Ave	Desoto Rd	A	A
Desoto Rd	Hughes Rd	A	A
Hughes Rd	K-7/ US-73	A	A

Segment LOS – K-7 / US-73

The results for the level of service analysis for the last year where data was available (2008) using the existing lane geometry provides a level of service of A for all mainline K-7/US-73 traffic. Projecting this data to 2013 and 2030 volumes and using the existing lane geometry, all segments provided a level of service of A. No intersection levels of service were calculated due to the lack of available data.

Segment LOS – Eisenhower Road

Using existing lane geometry for the analysis, the 2013 traffic volumes provide a level of service of A for all ½ mile segments. Additionally, using the projected 2030 volumes and the existing lane geometry, all segments analyzed will maintain a level of service of A. No intersection levels of service were calculated due to the lack of available data.

Recommendation

Based on the segment analysis of K-7/US-73 and Eisenhower Road in the City of Lansing, it is recommended to not reclassify either of these facilities. Volumes in this area, assuming a linear growth projection of 1.5%, will not dictate a reclassification or additional construction projects to increase capacity along the two analyzed roadway sections.

AWR

cc: Jason Meyers, P.E.

Memorandum *(continued)*

CAPACITY ANALYSIS OUTPUT

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2008 Conditions
Highway: K-7
From/To: Marxen to McIntyre
Jurisdiction:
Analysis Year: 2008
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	4		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	1.0	mph	1.0	mph
Free-flow speed	44.0	mph	44.0	mph

VOLUME

Direction	1		2	
Volume, V	427	vph	427	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	116		116	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	235	pcphpl	235	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	235	pcphpl	235	pcphpl
Free-flow speed, FFS	44.0	mph	44.0	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.2	pc/mi/ln	5.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	232.1	232.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.37	2.37
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2008 Conditions
Highway: K-7
From/To: McIntyre to 4-H
Jurisdiction:
Analysis Year: 2008
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	44.3	mph	44.3	mph

VOLUME

Direction	1		2	
Volume, V	430	vph	430	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	117		117	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	237	pcphpl	237	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	237	pcphpl	237	pcphpl
Free-flow speed, FFS	44.3	mph	44.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.3	pc/mi/ln	5.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	233.7	233.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.38	2.38
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2008 Conditions
Highway: K-7
From/To: 4-H to Ida
Jurisdiction:
Analysis Year: 2008
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	44.3	mph	44.3	mph

VOLUME

Direction	1		2	
Volume, V	469	vph	469	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	127		127	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	258	pcphpl	258	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	258	pcphpl	258	pcphpl
Free-flow speed, FFS	44.3	mph	44.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.7	pc/mi/ln	5.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	254.9	254.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.42	2.42
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2008 Conditions
Highway: K-7
From/To: Ida to Eisenhower
Jurisdiction:
Analysis Year: 2008
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	10		10	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.5	mph	2.5	mph
Free-flow speed	42.5	mph	42.5	mph

VOLUME

Direction	1		2	
Volume, V	430	vph	430	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	117		117	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	237	pcphpl	237	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	237	pcphpl	237	pcphpl
Free-flow speed, FFS	42.5	mph	42.5	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.3	pc/mi/ln	5.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	233.7	233.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.38	2.38
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Est Conditions
Highway: K-7
From/To: Marxen to McIntyre
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	4		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	1.0	mph	1.0	mph
Free-flow speed	44.0	mph	44.0	mph

VOLUME

Direction	1		2	
Volume, V	461	vph	461	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	125		125	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	254	pcphpl	254	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	254	pcphpl	254	pcphpl
Free-flow speed, FFS	44.0	mph	44.0	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.6	pc/mi/ln	5.6	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	250.5	250.5
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.41	2.41
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Est Conditions
Highway: K-7
From/To: McIntyre to 4-H
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	7		7	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	1.8	mph	1.8	mph
Free-flow speed	43.3	mph	43.3	mph

VOLUME

Direction	1		2	
Volume, V	463	vph	463	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	126		126	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	255	pcphpl	255	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	255	pcphpl	255	pcphpl
Free-flow speed, FFS	43.3	mph	43.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.7	pc/mi/ln	5.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	251.6	251.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.41	2.41
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Est Conditions
Highway: K-7
From/To: 4-H to Ida
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	44.3	mph	44.3	mph

VOLUME

Direction	1		2	
Volume, V	505	vph	505	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	137		137	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	278	pcphpl	278	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	278	pcphpl	278	pcphpl
Free-flow speed, FFS	44.3	mph	44.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	6.2	pc/mi/ln	6.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	274.5	274.5
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.46	2.46
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Est Conditions
Highway: K-7
From/To: Ida to Eisenhower
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	10		10	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.5	mph	2.5	mph
Free-flow speed	42.5	mph	42.5	mph

VOLUME

Direction	1		2	
Volume, V	463	vph	463	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	126		126	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	255	pcphpl	255	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	255	pcphpl	255	pcphpl
Free-flow speed, FFS	42.5	mph	42.5	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	5.7	pc/mi/ln	5.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	251.6	251.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.41	2.41
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Est Conditions
Highway: K-7
From/To: Marxen to McIntyre
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	4		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	1.0	mph	1.0	mph
Free-flow speed	44.0	mph	44.0	mph

VOLUME

Direction	1		2	
Volume, V	593	vph	593	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	161		161	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	327	pcphpl	327	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	327	pcphpl	327	pcphpl
Free-flow speed, FFS	44.0	mph	44.0	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	7.3	pc/mi/ln	7.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	322.3	322.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.54	2.54
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Est Conditions
Highway: K-7
From/To: McIntyre to 4-H
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	7		7	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	1.8	mph	1.8	mph
Free-flow speed	43.3	mph	43.3	mph

VOLUME

Direction	1		2	
Volume, V	596	vph	596	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	162		162	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	328	pcphpl	328	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	328	pcphpl	328	pcphpl
Free-flow speed, FFS	43.3	mph	43.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	7.3	pc/mi/ln	7.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	323.9	323.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.54	2.54
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Est Conditions
Highway: K-7
From/To: 4-H to Ida
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	44.3	mph	44.3	mph

VOLUME

Direction	1		2	
Volume, V	650	vph	650	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	177		177	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	358	pcphpl	358	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	358	pcphpl	358	pcphpl
Free-flow speed, FFS	44.3	mph	44.3	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	8.0	pc/mi/ln	8.0	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	353.3	353.3
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.58	2.58
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Est Conditions
Highway: K-7
From/To: Ida to Eisenhower
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	10		10	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.5	mph	2.5	mph
Free-flow speed	42.5	mph	42.5	mph

VOLUME

Direction	1		2	
Volume, V	596	vph	596	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	162		162	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Composite	
Grade	0.00	%	0.00	%
Segment length	1.00	mi	1.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	328	pcphpl	328	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	328	pcphpl	328	pcphpl
Free-flow speed, FFS	42.5	mph	42.5	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	7.3	pc/mi/ln	7.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	55	55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	323.9	323.9
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	2.54	2.54
Bicycle LOS	C	C

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Conditions
Highway: Eisenhower
From/To: 155 to 10
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	145	vph	145	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	39		39	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	79	pcphpl	79	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	79	pcphpl	79	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	1.8	pc/mi/ln	1.8	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	78.8	78.8
Effective width of outside lane, We	28.95	28.95
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	0.30	0.30
Bicycle LOS	A	A

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Conditions
Highway: Eisenhower
From/To: 10 to Desoto
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	136	vph	136	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	37		37	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	75	pcphpl	75	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	75	pcphpl	75	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	1.7	pc/mi/ln	1.7	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	73.9	73.9
Effective width of outside lane, We	29.76	29.76
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	0.03	0.03
Bicycle LOS	A	A

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Conditions
Highway: Eisenhower
From/To: Desoto to Hughes
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	155	vph	155	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	42		42	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	85	pcphpl	85	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	85	pcphpl	85	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	1.9	pc/mi/ln	1.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	84.2	84.2
Effective width of outside lane, We	28.05	28.05
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	0.59	0.59
Bicycle LOS	A	A

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2013 Conditions
Highway: Eisenhower
From/To: Hughes to K-7
Jurisdiction:
Analysis Year: 2013
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	153	vph	153	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	42		42	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	84	pcphpl	84	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	84	pcphpl	84	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	1.9	pc/mi/ln	1.9	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	83.2	83.2
Effective width of outside lane, We	28.23	28.23
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	0.53	0.53
Bicycle LOS	A	A

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Conditions
Highway: Eisenhower
From/To: 155 to 10
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	187	vph	187	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	51		51	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	103	pcphpl	103	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	103	pcphpl	103	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	2.3	pc/mi/ln	2.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	101.6	101.6
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	1.74	1.74
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Conditions
Highway: Eisenhower
From/To: 10 to Desoto
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	176	vph	176	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	48		48	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	97	pcphpl	97	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	97	pcphpl	97	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	2.2	pc/mi/ln	2.2	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	95.7	95.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	1.71	1.71
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Conditions
Highway: Eisenhower
From/To: Desoto to Hughes
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	200	vph	200	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	54		54	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	110	pcphpl	110	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	110	pcphpl	110	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	2.4	pc/mi/ln	2.4	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	108.7	108.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	1.77	1.77
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.60

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: Andrew Reid
Agency/Co:
Date: 7/15/2014
Analysis Period: 2030 Conditions
Highway: Eisenhower
From/To: Hughes to K-7
Jurisdiction:
Analysis Year: 2030
Project ID:

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	3		3	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.8	mph	0.8	mph
Free-flow speed	42.7	mph	42.7	mph

VOLUME

Direction	1		2	
Volume, V	197	vph	197	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	54		54	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Composite		Grade	
Grade	0.00	%	0.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	108	pcphpl	108	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	108	pcphpl	108	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	A		A	
Density, D	2.4	pc/mi/ln	2.4	pc/mi/ln

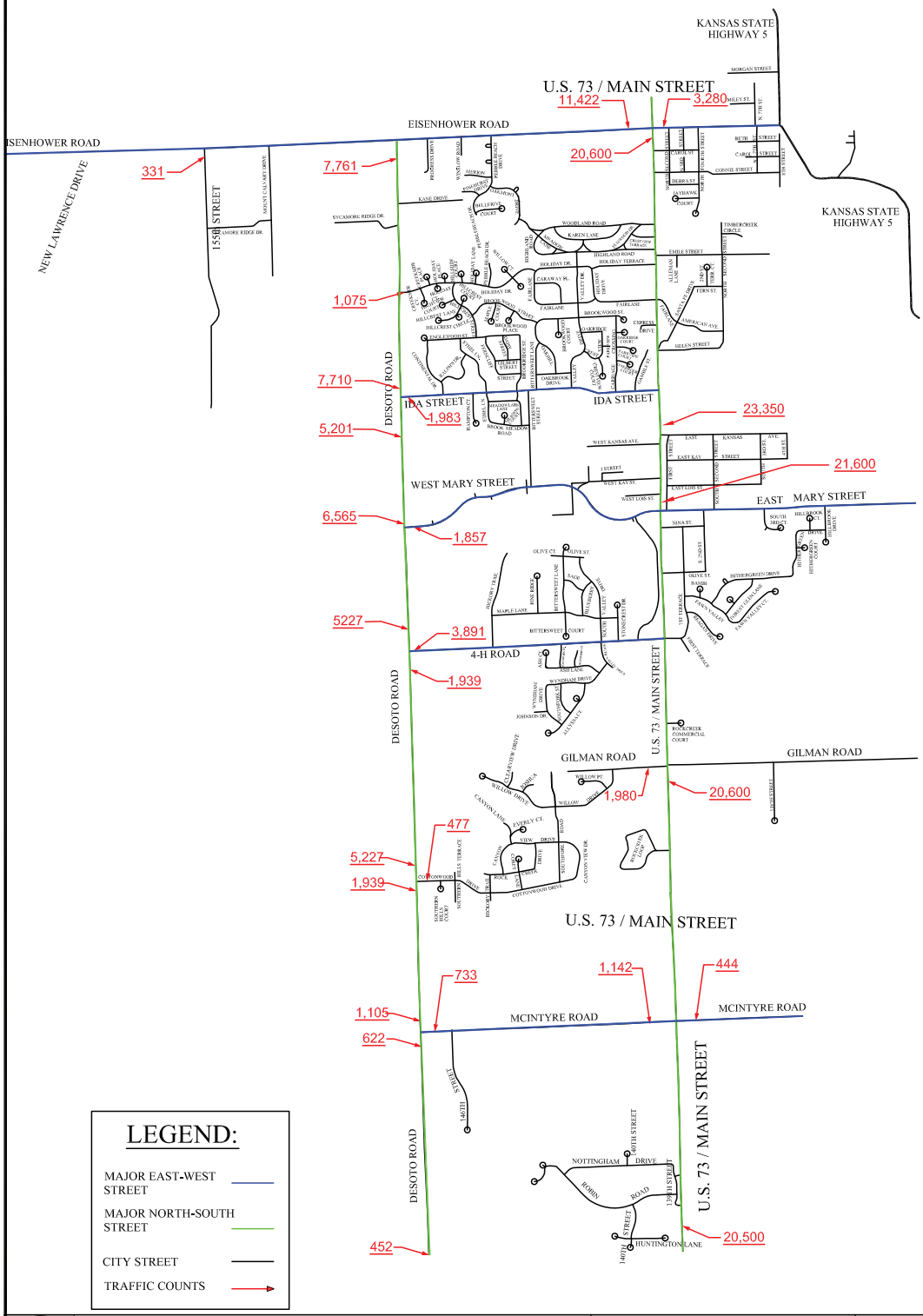
Bicycle Level of Service

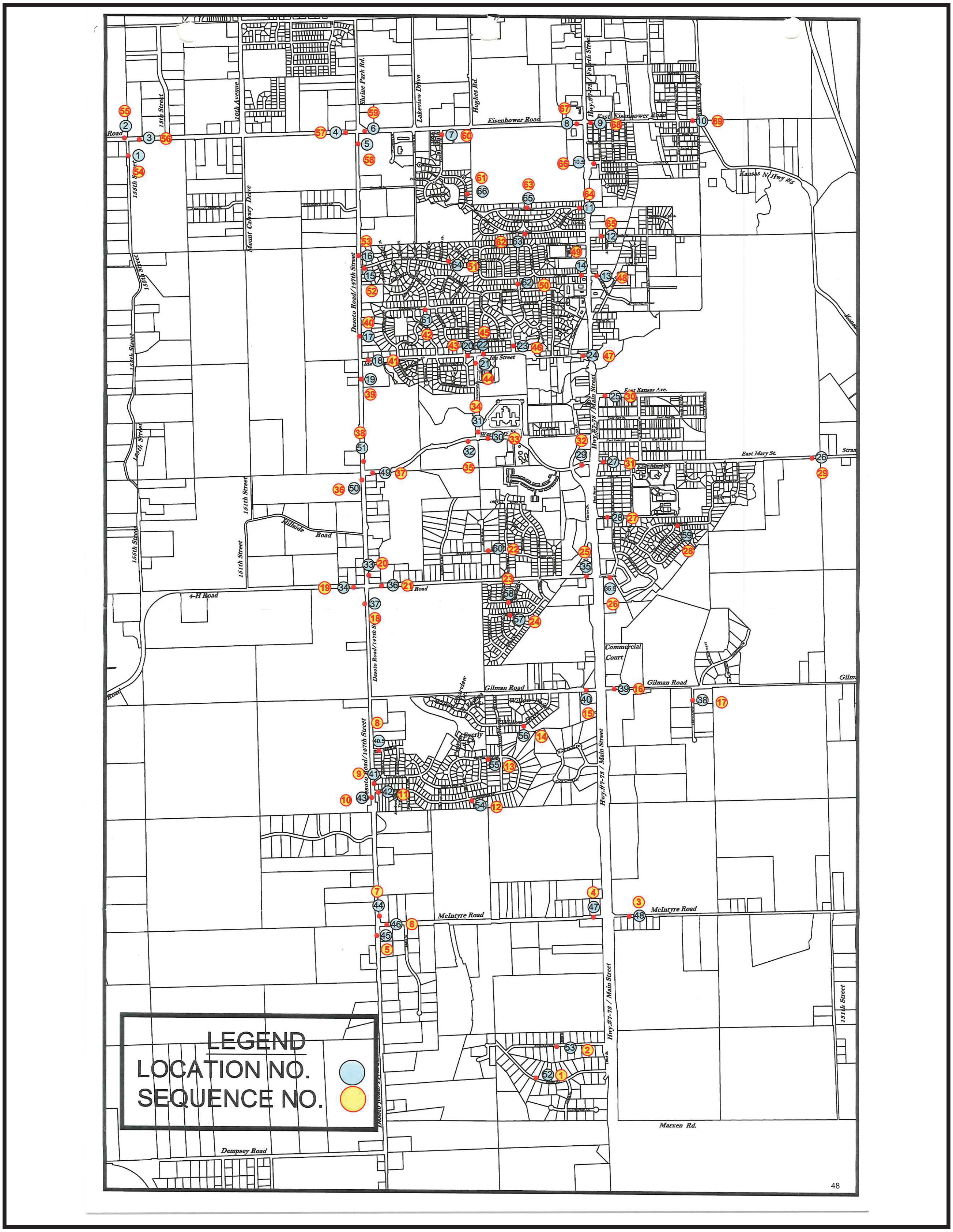
Posted speed limit, Sp	40	40
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	107.1	107.1
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.17	4.17
Bicycle LOS Score, BLOS	1.76	1.76
Bicycle LOS	B	B

Overall results are not computed when free-flow speed is less than 45 mph.

Memorandum *(continued)*

TRAFFIC COUNTS


KANSAS STATE HIGHWAY 5
U.S. 73 / MAIN STREET
11,422
3,280
EISENHOWER ROAD
20,600
331
7,761
NEW LAWRENCE DRIVE
155TH STREET
1,075
7,710
DESOTO ROAD
IDA STREET
1,983
5,201
23,350
WEST MARY STREET
21,600
EAST MARY STREET
6,565
1,857
5227
3,891
4-H ROAD
1,939
GILMAN ROAD
1,980
20,600
477
5,227
1,939
733
1,142
444
1,105
MCINTYRE ROAD
622
452
20,500
HUNTINGTON LANE
LEGEND:
MAJOR EAST-WEST STREET
MAJOR NORTH-SOUTH STREET
CITY STREET
TRAFFIC COUNTS
CITY OF LANSING
TRAFFIC COUNT MAP
SCALE: NTS
DATE:
09 APRIL 2008
47
DCT


Eisenhower Road
Shrine Park Rd.
Lakeview Drive
Hughes Rd.
10th Avenue
158th Street
155th Street
Mount Calvary Drive
Desoto Road/147th Street
East Eisenhower Road
Kansas N Hwy #5
East Kansas Ave.
East Mary St.
151th Street
Hillside Road
4-H Road
Commercial Court
Gilman Road
McIntyre Road
Hwy.#7-73 / Main Street
Marxen Rd.
Dempsey Road
181th Street
LEGEND
LOCATION NO.
SEQUENCE NO.
48

SEQ.	NO.	Date Set	Date Removed	Placement Location	Total Traffic	Total Hrs	Vehicles Per Hr.	Vehicles Per Day	Posted Speed	Avg Speed	50th %	85th %	Max. Speed
1	52	6/10/2013	6/12/2013	14144 Robin Rd. on Light Pole #B12872	272	48	5.67	136	30	17.74	15	27	67
2	53	6/12/2013	6/14/2013	14115 Notingham Dr. Light Pole #B12865	393	48.25	8.15	195	30	24.01	25	33	45
3	48	6/14/2013	6/17/2013	E. McIntyre E. of HWY 7 on Truck Route Sign Post	2437	71.25	34.20	821	35	26.81	28	35	66
4	47	6/17/2013	6/19/2013	W. McIntyre W. of HWY 7 on Share The Road Sign Post	1558	48.25	32.29	775	35	32.14	33	37	56
5	45	6/19/2013	6/21/2013	147th S. of W. McIntyre on Truck Route Sign Post	1842	47.5	38.78	931	40	36.92	38	43	71
[illegible]	46	6/21/2013	6/24/2013	W. McIntyre E. of 147th on Share the Road Sign Post	3658	72	50.81	1219	35	33.24	34	44	75
7	44	6/24/2013	6/26/2013	147th N. of W. McIntyre on Share the Road Sign Post	3833	47.75	80.27	1927	40	36.65	40	46	72
8	40.5	6/26/2013	6/26/2013	Ridge Dr. Speed Limit Sign S. Side	1633	47.75	34.20	821	20	13.6	12	18	30
9	41	6/28/2013	7/8/2013	147th North of Cottonwood on Speed limit sign post	5738	84	68.31	1639	40	38.64	40	46	67
10	43	7/8/2013	7/10/2013	147th s. of Cottonwood on Speed Limit Sign Post	2469	46.25	53.38	1281	40	42.12	43	48	68
11	42	7/10/2013	7/12/2013	Cottonwood East of 147th on No Parking Sign Post	1681	48.25	34.84	836	20	21.58	22	27	40
12	54	7/12/2013	7/15/2013	604 Cottonwood Dr. on Speed Limit Sign Post	1963	71.25	27.55	661	20	18.81	19	25	41
13	55	7/15/2013	7/17/2013	609 Canyon View Dr. on Speed Limit Sign Post	2032	47.75	42.55	1021	20	16.79	15	23	51
14	56	7/17/2013	7/19/2013	120 Willow Dr. on Speed Limit Sign Post	3175	48	66.15	1588	20	22.12	23	27	37
15	40	7/19/2013	7/22/2013	Gilman Rd. West of HWY 7 on Speed Limit Sign Post	4260	71.75	59.37	1425	35	26.81	28	32	49
16	39	7/22/2013	7/24/2013	Gilman Rd. East of HWY 7 on Truck Route Sign Post	2269	48	47.27	1135	35	34.9	36	41	55
17	38	7/24/2013	7/26/2013	136th South of Gilman on Stop Sign Post	1037	48.25	21.49	516	35	21.97	22	29	47
18	37	7/26/2013	7/29/2013	147th South of 4H on Speed Limit Sign Post	6144	71.5	85.93	2062	40	34.47	35	39	53
19	34	7/29/2013	7/31/2013	4H West of 147th on Truck Route Sign Post	2536	47.75	53.11	1275	40	39.1	42	48	67
20	33	7/31/2013	8/2/2013	DeSoto North of 4H on No Truck Route Sign Post	8359	48	174.15	4180	35	30.56	31	35	49
21	36	8/2/2013	8/5/2013	4H East of 147th on Speed Limit Sign Post	8841	72	122.79	2947	40	38.47	39	44	69
22	60	8/5/2013	8/7/2013	601 Maple Ln. on Speed Limit Sign Post	744	48	15.50	372	25	18.84	17	28	48
23	58	8/7/2013	8/9/2013	401 Ash Ln. on Speed Limit Sign Post	570	48.25	11.81	284	20	16.82	16	22	36
24	57	8/9/2013	8/12/2013	905 Wyndham Dr. on Speed Limit Sign Post	2600	71.75	36.24	870	20	18.5	18	22	51
25	35	8/12/2013	8/14/2013	4H West of HWY 7 on Truck Route Sign Post	12182	48	253.79	6091	40	28.12	30	36	62
26	35.5	8/14/2013	8/16/2013	Lansing Ln. Stop Sign S. Side at City Hall Entrance	6280	47.5	132.21	3173	20	16.88	16	22	36
27	28	8/16/2013	8/19/2013	Olive St. East of HWY 7 on Speed Limit Sign Post	7317	72	101.63	2439	20	18.16	19	23	39
28	59	8/19/2013	8/21/2013	431 Hithergreen Dr. on Speed Limit Sign Post	814	48.25	16.87	405	20	18.58	19	25	39
29	26	8/21/2013	8/23/2013	E. Mary at City Limits on Share the Road Sign Post	3970	47.25	84.02	2017	35	34.99	36	44	73
30	25	8/23/2013	8/26/2013	E. Kansas on Speed Limit Sign Post	5251	72.25	72.68	1744	20	20.45	21	25	50
31	27	8/26/2013	8/28/2013	E. Mary East of HWY 7 on Speed Limit Sign Post	8054	48	167.79	4027	20	20.78	21	25	44
32	29	8/28/2013	8/30/2013	W. Mary West of K-7 on ON Adopt-A-Street Sign Post	6546	45.5	143.87	3453	35	24.17	25	31	46
33	30	8/30/2013	9/3/2013	W. Mary East of Bittersweet on Speed Limit Sign Post	5064	76	66.63	1599	35	27.69	29	36	51
34	31	9/3/2013	9/5/2013	Bittersweet North of W. Mary on No Parking Sign Post	5887	51.25	114.87	2757	25	20.36	20	27	60
[illegible]	32	9/5/2013	9/7/2013	W. Mary West of Bittersweet on End of School Zone Sign Post	2757	44.5	61.96	1487	35	31.32	32	38	51
36	50	9/7/2013	9/9/2013	DeSoto South of W. Mary on Speed Limit Sign Post	8666	47.25	183.41	4402	35	37.41	38	42	63
37	49	9/9/2013	9/11/2013	W. Mary East of DeSoto Rd. on Adopt-A-Street Sign Post	2858	49	58.33	1400	35	30.61	31	36	64
38	51	9/11/2013	9/13/2013	DeSoto North of W. Mary on Speed Limit Sign Post	10385	49	211.94	5087	35	35.82	36	41	59
39	19	9/13/2013	9/16/2013	DeSoto South of Ida on Share The Road Sign Post	19671	70.25	280.01	6720	35	36.59	37	41	65
40	17	9/16/2013	9/18/2013	DeSoto North of Ida on Share The Road Sign Post	12042	47.5	253.52	6084	35	34.03	35	39	62
41	18	9/18/2013	9/20/2013	Ida St. East of DeSoto RD on Speed Limit Sign Post	6592	50	131.84	3164	25	23.72	24	29	49
42	61	9/20/2013	9/23/2013	809 Englewood Dr. on Speed Limit Sign Post	537	70.25	7.64	183	20	16.25	15	22	34
43	20	9/23/2013	9/26/2013	Ida St. West of Brookridge on End of School Zone Sign Post	7640	76.25	100.20	2405	25	24.49	25	29	42
44	21	9/26/2013	9/30/2013	Bittersweet South of Ida on Speed Limit Sign Post	4862	79.75	60.97	1463	25	19.82	20	26	50
45	22	9/30/2013	10/2/2013	Ida West of Bittersweet on School Crossing Sign Post	4784	46.75	102.33	2456	25	22.77	23	28	47
46	23	10/2/2013	10/4/2013	Valley North of Ida on No Parking Sign Post	1918	49.25	38.94	935	20	17.63	18	22	34
47	24	10/4/2013	10/7/2013	Ida St. West of HWY 7 on Speed Limit Sign Post	7665	72.5	105.72	2537	25	22.62	23	28	44
48	13	10/7/2013	10/9/2013	East Fairlane East of HWY 7 on No Parking Sign Post	2700	47.5	56.84	1364	25	20.12	21	25	35
49	14	10/9/2013	10/11/2013	West Fairlane West of HWY 7 on Speed Limit Sign Post	3611	48	75.23	1806	20	22.04	22	27	39
50	62	10/11/2013	10/14/2013	424 Valley Dr. on Speed Limit Sign Post	3889	74.5	52.20	1253	20	17.67	18	23	46
51	64	10/16/2013	10/18/2013	702 Holiday Dr. on Speed Limit Sign Post	2370	47.5	49.89	1197	20	20.58	21	25	36
53	15	10/18/2013	10/21/2013	Holiday Dr. E. of DeSoto Rd. on Ped. Crossing Sign Post	5350	69.25	77.26	1854	20	22.73	23	27	44
52	63	10/14/2013	10/16/2013	216 Highland Rd. on Speed Limit Sign Post	775	45.25	17.13	411	20	20.66	21	26	37
54	16	10/21/2013	10/23/2013	DeSoto Rd. North of Holiday Dr. on Speed Limit Sign Post	13003	48	270.90	6502	35	35.17	36	40	56
55	1	10/23/2013	10/28/2013	155th South of W. Eisenhower on Road Narrows Sign Post	1616	75.75	21.33	512	25	31.53	32	39	69
56	2	10/28/2013	10/30/2013	W. Eisenhower W. of 155th on Speed Limit Sign Post	13793	47.75	288.86	6933	40	41.89	42	46	68
57	3	10/30/2013	11/1/2013	W. Eisenhower East of 155th on Speed Limit Sign Post	13115	48.25	271.81	6524	40	39.89	40	45	71
58	4	11/1/2013	11/4/2013	W. Eisenhower West of DeSoto Rd. on Speed Limit Sign Post	33349	72.5	459.99	11040	40	34.96	36	42	67
59	5	11/4/2013	11/6/2013	DeSoto Rd. South of W. Eisenhower on No littering Sign Post	14609	47.25	309.19	7420	35	32.01	32	37	51
60	6	11/6/2013	11/12/2013	W. Eisenhower East of DeSoto Rd. on Speed Limit Sign Post	28963	73.5	394.05	9457	40	38.54	39	43	72
61	7	11/12/2013	11/18/2013	N. Pebble Beach Dr. on Speed Limit Sign Post	4773	67.5	70.71	1697	20	20.79	21	27	51
62	66	11/18/2013	11/25/2013	908 Oakmont Dr. on Speed Limit Sign Post	2638	70.25	37.55	901	20	20.04	20	24	36
[illegible]	65	11/25/2013	11/27/2013	132 Woodland Rd. on Speed Limit Sign Post	449	48.25	9.31	223	20	21.85	23	27	39
[illegible]	11	11/27/2013	11/29/2013	105 Woodland Dr. on Speed Limit Sign Post	941	48.5	19.40	466	20	21	22	27	40
65	12	11/29/2013	12/2/2013	Speed Limit Sign Post Emile St.	1200	64.75	18.53	445	20	21.41	22	25	37
66	10.5	12/2/2013	12/6/2013	Connie St. Speed Limit Sign S. Side	2750	72.25	38.06	913	20	19.56	20	25	46
67	8	12/6/2013	12/9/2013	W. Eisenhower West of HWY 7 on Share The Road Sign Post	16230	53.25	304.79	7315	40	36.99	37	42	60
68	9	12/9/2013	12/9/2013	E. Eisenhower East of HWY 7 on Share the Road Sign Post	5217	64.75	80.57	1934	35	26.77	28	33	51
69	10	12/12/2013	12/16/2013	E. Eisenhower West of HWY 5 on Speed Limit Sign Post	3117	39	79.92	1918	35	27.06	28	35	59

LIVE WORK GROW
A Vision for Tomorrow
Lansing 2030

TOWNE CENTER DEVELOPMENT VISION A

LANSING, KANSAS

DESIGNWORKSHOP CONFLUENCE

LIVE WORK GROW
A Vision for Tomorrow
Lansing 2030

TOWNE CENTER DEVELOPMENT VISION B

LANSING, KANSAS

DESIGNWORKSHOP CONFLUENCE

TOWNE CENTER DEVELOPMENT VISION C

LANSING, KANSAS