

Transportation

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CHAPTER EIGHT - TRANSPORTATION

This chapter presents an overview of the detailed information provided in the comprehensive transportation plan for the metropolitan area, *Transportation 2025*. The primary purpose of the transportation plan is to define and plan for transportation systems to serve the community for the next 25 years. The principle objectives of that plan are to identify existing and projected deficiencies in the transportation network; develop a long-range plan for all modes of transportation; maintain consistency with federal and state requirements; and outline policies for implementing the plan. This chapter focuses on several components of transportation planning: functional street and road classification, safety, transit, bike/pedestrian facilities, traffic congestion, and access management.

Note: The goals in this comprehensive plan are not written in any order of priority, therefore, all goals are written with equal importance.

STRATEGIES: TRANSPORTATION PLAN

The following strategies express key elements of the Transportation Plan in the City of Lawrence and the unincorporated areas of Douglas County.

- In order to continue to improve the viability of pedestrian and bicycle access, and public transportation as important alternative transportation modes, the City and County will continue to develop and extend bicycle and pedestrian facilities, and public transportation services.
- Coordination and cooperation among the City of Lawrence, Douglas County, the University of Kansas, Haskell Indian Nations University and public school districts will be encouraged to coordinate a successful system of vehicle, pedestrian and bicycle access systems.
- The City and County will collaborate on and pursue planned transportation improvements that add substantial capacity to the street and roadway system and facilitate the land use plan.
- The completion of a regional integrated transportation system utilizing street and road connectivity, locally and regionally, inside new developments, between adjacent developments, and between new developments and their surroundings.

FUNCTIONAL STREET CLASSIFICATION

Kansas Planning and Zoning Statutes authorize the city and the county to establish an official map designating major streets and roads (KSA 12-765). The Major Thoroughfares Maps serves several purposes:

1. It designates streets and roads by their functional classification in the City and County.
2. By adopting the a Major Thoroughfares Maps, the community identifies the collector and arterial street and road network in advance of development. Adoption permits the City and county to establish rights-of-way and setback requirements for each classification of

street or road through the establishment of criteria in the Subdivision Regulations for dedication of rights-of-way as a requirement of development.

The functional classifications of streets in Lawrence are:

Street Type	Description
<i>Interstate/Freeway</i>	A divided, limited access facility with no direct land access & no at-grade crossings or intersections. The freeway is intended to provide the highest degree of mobility serving potentially large traffic volumes & long trip lengths.
<i>Expressway</i>	Similar to a freeway except some cross streets may intersect at grade. Access may be either full or partially controlled. The expressway is intended to provide a high degree of mobility rather than local property access.
<i>Principal Arterial</i>	Principal arterials permit traffic flow through the urban area & between major destinations. They are of great importance in the area transportation system as they connect major traffic generators to other major activity centers. Principal arterials carry a high proportion of the total urban travel on a minimum of roadway mileage. Since movement, not access, is the primary function, access management is essential to preserve capacity & enhance safety. Medians can be used to control potential conflict points & to separate opposing travel movements. Left-turn lanes are essential at intersections to maintain mobility for through traffic. Right-turn deceleration lanes are desirable at intersections with significant turning activity.
<i>Minor Arterial</i>	Minor Arterials collect & distribute traffic from principal arterials & expressways to streets of lower classifications or, in some cases, allow traffic to directly access destinations. They serve secondary traffic generators such as community business centers, neighborhood shopping centers, multi-family residential areas, & traffic from neighborhood to neighborhood. Access to land use activities is generally permitted, but should be consolidated, shared or limited to larger-scale uses.
<i>Collector</i>	Collector streets provide for land access & traffic circulation within & between residential neighborhoods, commercial & industrial areas. Collector streets distribute traffic from such areas to the arterial street system. Collectors do not accommodate long through trips & are not continuous for any great length. Where arterial streets are adequately spaced, collector streets should penetrate but not necessarily have direct continuity through residential areas. Individual access from residential lots should be discouraged. The cross section or width of a collector street may vary depending on the type, scale, & density of the adjacent land uses. Left-turn lanes should be considered on collector streets adjacent to non-residential development.
<i>Residential Collector</i>	Residential collector is a special category of collector street characterized by lower speeds & the residential nature of land uses along the corridor. Bicycle & pedestrian facilities are strongly recommended for residential collectors. Various traffic-calming treatments may be used to reduce travel speeds. Residential collector streets with adjacent residential land uses should be limited to two lanes. These streets can serve as a connector street between local streets and the thoroughfare system.
<i>Local</i>	Local streets provide direct access to adjacent land uses. Direct access from a local street to an arterial street or principal arterial street will be discouraged; permission to do so will require proof of hardship or burden from the applicant. Local streets offer the lowest level of mobility. Traffic volumes are typically low and speeds relatively slow. Local streets typically make up the largest percentage of street mileage.

The functional classifications of roads in unincorporated Douglas County are:

Road Type	Description
<i>Freeway</i>	A divided, limited access facility with no direct land access & no at-grade crossings or intersections. The freeway is intended to provide the highest degree of mobility serving potentially large traffic volumes & long trip lengths.
<i>Principal Arterial</i>	Roadway is of countywide or regional importance and is intended to serve relatively high volumes of traffic traveling relatively long distances. Intended primarily to serve through traffic rather than local property access.
<i>Minor Arterial</i>	Similar in function to principal arterials, but operates under lower traffic volumes, serves trips of shorter distances, and provides higher degree of property access than principal arterials.
<i>Major Collector</i>	Roadway that provides for traffic movement between arterials and local roads and carries moderate traffic volumes over moderate distances. May also provide direct access to abutting rural properties.
<i>Minor Collector</i>	Similar in function to a major collector, but carries lower traffic volumes over shorter distances and has a higher degree of property access.
<i>Local</i>	Roadway that provides direct access to abutting properties and connections to higher roadway systems. Traffic volumes are typically low. Local road offer the lowest level of mobility and serve the shortest trip lengths of all road classifications.

LEVELS OF SERVICE (LOS)

Level-of-Service (LOS) is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. LOS standards are used to determine the congestion level of streets and highways. The City and County should develop LOS standards for urban arterials, intersections, and rural highways because these standards allow the community to stay ahead of the congestion curve by gauging the performance of the roadway system and determining the amount of funding necessary to maintain adequate performance.

A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. There are six level of service designations from A to F with level-of-service A representing the best operating conditions and level-of-service F the worst.

Level-of-Service	Description
A	represents free flow. Users are typically unaffected by the presence of others in the traffic stream. Freedom to select speeds & maneuver is extremely high & the comfort & convenience provided to motorists, passengers, bicyclists, or pedestrians is excellent.
B	is in the range of stable traffic flow. The presence of other traffic begins to be noticeable. The freedom to maneuver & the level of comfort & convenience are somewhat less.
C	is in the range of stable flow, but it marks the beginning of the range of flow in which traffic operations are significantly affected by the presence of others. The general level of comfort & convenience declines noticeably.
D	represents high density but stable flow. Speed & freedom to maneuver are severely restricted & the user experiences a poor level of comfort & convenience. Small increases in traffic flow will generally cause operational problems.
E	represents operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver is extremely difficult & must rely on the courtesy of other users. Comfort & convenience are poor & operations at this level are usually unstable because small increases in flow or minor incidents will cause breakdowns in the traffic flow.
F	is used to define forced or breakdown flow. This condition exists where the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations. Operations within the flow of traffic are characterized by stop-&-go movements.

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TRANSPORTATION GOALS AND POLICIES

Guidelines are needed to direct the continued development of a transportation system that provides for adequate and convenient mobility. The following goals are considered to be of equal importance and not in any priority order.

GOAL 1: Support the Economic Vitality of the Region

Approve guidelines that enhance economic activity and foster the principles of accessibility, convenience, cooperation, and aesthetic character.

Policy 1.1 Enhance the Efficient Movement of Freight

- a. Facilitate the movement of freight by air, rail, and truck. Designate specific Lawrence arterial streets as truck routes. Use this designation to improve the street system to better accommodate industrial traffic movements through adequate turning radii, lane widths, pavement conditions to withstand industrial loads, and access control.
- b. Protect designated and planned industrial areas from encroachment of commercial and residential use.

Policy 1.2 Enhance All Transportation Facilities

- a. Continue to develop the Lawrence Municipal Airport for private and commercial aviation and aviation-related business development in accordance with the adopted Airport Master Plan. Protect the airport's approaches and air space from encroachment through height and land use restrictions. Utilize the Airport Master Plan to assist in the projected aviation activity of the airport, allowing effective usage of the facility.
- b. Strive to locate and develop a multi-modal transportation center to facilitate rail, bus, transit (inter-city and intra-city), taxi, commuter, and ride-sharing transportation needs, with proper bicycle/pedestrian access for the center. Proper timing and coordination between the various transportation modes for efficient and economical access shall be an objective to encourage use.

GOAL 2: Maintain, Expand and Enhance the Existing Street and Road Network

Advance policies that promote roadway connectivity and expand multimodal services.

Policy 2.1 Support an Integrated System

- a. Encourage location and concentration of land uses and urban design that will promote and facilitate pedestrian and bicycle access to public transportation.
- b. Establish an integrated system of bike and pedestrian improvements that provide for safe and efficient connections throughout the community and offers viable choices of travel.
- c. Develop a system that integrates all modes of transportation by providing appropriate links to major transit terminals.

Policy 2.2 Coordinate with Other Jurisdictions

- a. Coordinate with other transportation agencies and adjacent communities and counties for the extension of existing and planned arterial, collector, and access/frontage streets or roads.
- b. Pursue the expansion of, and continue to improve the coordination of public, private and university transit systems.
- c. Examine the potential of expanding existing commuter services and the implementation of new transportation services between Douglas County, the Kansas City region, and the Topeka region.

Policy 2.3 Develop a Countywide Street and Road System

- a. Establish a street and road classification hierarchy for both Lawrence and unincorporated Douglas County that identifies the functions of all streets, roads, and intersections within the planning area. The development of this hierarchy should consider Lawrence's emphasis on alternative transportation modes.
- b. Direct access from a local street, public or private, to an arterial street or principal arterial street within the City of Lawrence shall not be permitted unless applicant provides proof of hardship or burden. Advanced planning of neighborhood street patterns should be required to avoid local-arterial street connections.
- c. Develop improvement and operational standards for street and road classes within the classification hierarchy while addressing the needs specific to Lawrence and unincorporated Douglas County.
- d. Utilize area planning to plot street expansions to connect neighborhoods.

Policy 2.4 Street, Road, Bridge, Sidewalk Maintenance and Upkeep

- a. Maintain the transportation network through continued maintenance of the infrastructure (bridges, public and private streets, public roads, sidewalks, driveways, parking areas, curbs and gutters) with ongoing patching, sealing, overlays or other appropriate maintenance strategies, and reconstruction/rehabilitation projects.
- b. Develop and maintain a methodology for inspection, maintenance, rehabilitation and replacement of bridges. Coordinate with KDOT as appropriate.

GOAL 3: Develop and Adopt Acceptable Levels of Service (LOS) Standards for City and County Roads.

Promote access management standards to reduce traffic congestion and increase LOS standards for the roadway network.

Policy 3.1 Determine and Attain the Critical LOS for the Street System Network

- a. An overall level of service D (LOS D) or higher should be maintained at signalized intersections during the a.m. and p.m. peak hours of operation. For intersections on principal arterial streets however, the principal arterial through traffic movements should maintain as close to a level of service C (LOS C) as possible or higher during a.m. and p.m. peak hours of operation.
- b. The desired level of service (LOS) may be achieved by increasing street or road capacity and intersection capacity and/or reducing vehicular traffic demand. Within urban areas, issues of transportation performance (LOS) may need to be balanced with issues of urban design, development, or redevelopment, land use functionality and physical and environmental constraints.

Policy 3.2 Implement Traffic Impact Standards

- a. Based on City Ordinance #7650, when a new development or redevelopment within the City of Lawrence produces 100 trips or more, a traffic impact study (TIS) shall be required. An evaluation of the traffic impacts of a development in the surrounding area should consider existing and projected traffic conditions, plus their impact on the existing transportation system. TIS's should also be based on planned improvements that are identified in the Capital Improvement Plan (CIP), the Comprehensive Plan, and the Long-Range Transportation Plan.
- b. The Capital Improvement Plan (for each the City of Lawrence and Douglas County), the Comprehensive Plan, and the Long-Range Transportation Plan shall be updated periodically to recognize changes in priorities and to add new projects with designated priorities.

Policy 3.3 Traffic Signals

- a. To optimize signals coordination, the desirable traffic signal spacing is 1 mile and ½ mile intervals. Locations that generate numerous trips may warrant signals at a location other than the 1-mile or ½-mile point.
- b. Actuated traffic signals should include push buttons to signal the need for pedestrians to cross. Actuated traffic signals should also include bicycle sensitive loop detectors adjacent to the curb.
- c. Pedestrian crossings along arterials should be implemented between stop lights that are 660 feet apart where pedestrian traffic warrants them.

Policy 3.4 Medians

- a. Medians may be used as a method of achieving any of the following objectives: provide access control, separate opposing traffic flows, provide for speed changes, store left-turning vehicles, provide a landscaped area, or provide a pedestrian refuge.
- b. Continuous raised medians should be considered for principal arterial streets. Arterial and collector streets may have raised medians, in accordance with circulation and land use needs.
- c. Where a raised median is not possible or is inappropriate on a principal arterial street, and arterial street, or on a collector street, a two-way continuous left-turn lane should be used adjacent to commercial land uses.
- d. On principal arterial or arterial streets adjacent to residential neighborhoods, the use of a continuous raised median should be considered to discourage cut-through traffic, emphasize through traffic flow on the arterial street, and direct neighborhood traffic to designated intersections.
- e. Openings in raised medians are desired at 1/4 mile intervals, with 1/8 mile spacing as a minimum distance. Collector streets, local roads (public and private), and driveways to developments should align with these median opening spacing requirements.
- f. A median crossover or median breaks should not be permitted on existing divided thoroughfares where median openings for crossroads and preplanned median breaks are established or, when spacing is not in the best interest of the traveling public.

GOAL 4: Protect the Environment and Promote Energy Conservation

Preserve the environment by adopting criteria that promote smart growth patterns to help sustain healthy air quality levels and minimize land use conflicts.

Policy 4.1 Promote Sensible Growth Patterns

- a. Provide an efficient and effective network of streets and roads that access all appropriate areas, provide continuity and connections into and beyond the City of Lawrence and Douglas County, and support the arrangements of various land uses within the urbanized area.
- b. Plan arterial and other street alignments to avoid, as practically feasible, incursions into natural and environmentally sensitive areas or negatively impacting them.

Policy 4.2 Support Measures to Maintain Air Quality and Minimize use of Fossil Fuels

- a. Support alternative transportation modes to improve air quality.
- b. Support projects that focus on traffic mitigation.

Policy 4.3 Use Appropriate Design Criteria to Minimize Negative Impacts

- a. Arterial and highway alignments should not advance beyond neighborhood boundaries in an effort to minimize traffic intrusion and negative impacts on residential areas.
- b. Street and road proposals should avoid steep slopes and also not be approved where physical constraints such as drainageways, existing land use, and topography may be unduly negatively impacted.
- c. Minimize impacts on scenic, historical, archeological, sensitive habitats, and environmentally sensitive areas.
- d. Designate roadway and transit corridors for streetscape, noise buffering, and/or landscaped median treatments as deemed appropriate by the governing agency.

GOAL 5: Increase Safety and Improve Quality of Life

Develop criteria that focus on the safety aspect of projects and require that the safety element of projects be addressed properly before approval is considered.

Policy 5.1 Enhance Public Safety

- a. Enhance public safety through the linking of residential developments to maintain an integrated street system and assure prompt emergency access.
- b. Identify improvements aimed at enhancing the safety of existing roadways (e.g. adding left-turn lanes at an intersection, traffic signal coordination, adding a right-turn lane at high traffic volume driveways and intersections, adding paved shoulders, improving roadway geometry, etc.).
- c. Improve pedestrian linkages between residential, commercial, and community facilities and schools.
- d. Evaluate access to new subdivisions based on public safety.
- e. Have clear, easily read, and unobstructed signage in conformance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Policy 5.2 On-Street Parking

- a. Parking on public streets is secondary to the street's primary purpose of providing safe and efficient travel for the public. Therefore, parking should be prohibited on principal arterial and arterial streets.
- b. Parking is normally permitted on collector streets, but may be restricted to accommodate bus stops, on-street bicycle lanes, added turning lanes at intersections, or other operations requirements.
- c. Parking is normally permitted on local streets, but may be restricted to one side to facilitate the flow of traffic and reduce congestion.
- d. In special areas in the city, historic districts, and some activity centers, on-street parking is desired, and should be permitted to contribute to the special character or theme of an area.

Policy 5.3 Street-Land Use Relationship

- a. The subdivision of property in suburban and rural areas for residential purposes must consider the logical planned extension and/or improvement of local and collector streets to adjacent properties, and property within a section.
- b. Buildings should be set back a sufficient distance from arterial and section line roads to accommodate future road improvements.

- c. In the urban growth areas, buildings must be set back from the property/lot line(s) a sufficient distance to accommodate planned extensions of streets along a common property line.

Policy 5.4 Enhance Streetscape and Gateways in the City of Lawrence

- a. Streetscapes should be utilized to provide visually attractive and physically comfortable environments that are integrated with similar environments of adjacent private property. Cultural, environmental, and historical considerations should be acknowledged when developing a streetscape.
- b. The provision of minimum lane widths, allowing brick or other alternative street surfaces, and utilizing minimum turning radii and/or curb extensions are an appropriate traffic calming technique when street character, as defined by land use and street classification, calls for slower speeds and enhanced pedestrian environments. Use of non-warranted stop signs, speed bumps, or dead-end roads is not desirable traffic calming techniques. Traffic calming measures should:
 - 1. Promote safe and pleasant conditions for motorists, bicyclists, pedestrians, and residents on neighborhood streets;
 - 2. Mitigate the impact of vehicular traffic, including air pollution, accidents, and noise;
 - 3. Offer more equal status to all modes of transportation; and
 - 4. Provide a visually attractive environment for those who travel through an area by increasing landscaping and gateway opportunities.
- c. Utilize the streetscape to establish a character or theme for special areas, historic districts, activity centers, universities, neighborhoods, or scenic drives and gateways.
- d. Use landscaping buffers between automobile traffic lanes and developed sites adjacent to the streets while maintaining safe sight distances.
- e. Utility (fire hydrants, traffic signal boxes, mailboxes, power poles, transformers, underground cables) design should minimize the visual presence of utilities within the streetscape. Utility corridors should be established in the greenspace to avoid conflicts between utilities and sidewalks or planting strips.

GOAL 6: Preserve Existing Transportation Facilities and Promote Efficient System Management and Operations

Create land use policies that promote *transportation* system preservation and will be conducive to multimodal transportation and access management standards.

Policy 6.1 Encourage Land Development Patterns to Promote Transportation Efficiency

- a. Encourage location and concentration of land uses and urban design which will promote and facilitate pedestrian and bicycle access to public transportation.
- b. Encourage subdivision design that maximizes connectivity.

Policy 6.2 Develop Access Management Standards in Low Density Residential Areas in the City of Lawrence

- a. The site design of a residential development should accommodate multiple points of access (direct and indirect), with attention to directing vehicular traffic to and from a development to collector and/or arterial streets.
- b. Encourage subdivision design in which residential lots are oriented towards, and take access from the neighborhood of which they are a part.
- c. Residential developments shall be sited so an individual residential dwelling does not take direct driveway access from an arterial or section line road. Existing urban residences with direct access to arterial streets, or suburban and rural residences that take direct access from a section line road or future arterial streets should be allowed to create a circular driveway so residents do not have to back out onto arterial streets.
- d. Fronting low-density residential lots on collector streets should be discouraged. Driveway access to individual residential lots should be from a local street or to an alley.
- e. Residential lot access shall be permitted on residential collector streets.
- f. Direct access from a local street, public or private, to an arterial street or principal arterial street shall not be permitted unless applicant provides proof of hardship or burden. Advanced planning of neighborhood street patterns should be required to avoid local-arterial street connections

Policy 6.3 Develop Access Management Standards in Multi-Family Areas in the City of Lawrence

- a. Site design of developments should accommodate multiple points of access (direct and indirect), with attention to directing vehicular traffic to and from a development to collector and/or arterial streets.

- b. The spacing between driveways to multi-family residential developments should be based on the designated functional classification of the adjacent street, projected traffic volumes of the adjacent street, topography, and physical features of the site, and the trip generation rate, or the traffic volumes from the proposed land use.
- c. A single parcel or contiguous parcels comprised of mixed-use developments (commercial, and/or multi-family residential) should be permitted access onto adjacent arterials only when projected traffic volume, topography, fire safety, or length of street frontage and site conditions warrant an individual driveway.

Policy 6.4 Develop Access Management Standards in Commercial and Industrial Areas in the City of Lawrence

- a. Site design of developments should accommodate multiple points of access (direct and indirect), with attention to directing vehicular traffic to and from a development to collector and/or arterial streets.
- b. The spacing between driveways to commercial and industrial developments should be based on the functional classification of the adjacent street, projected traffic volumes of the adjacent street, topography, physical features of the site, and the trip generation rate, or the traffic volumes from the proposed land use.
- c. A single parcel or contiguous parcels comprised of mixed-use developments (commercial and/or multi-family residential) should be permitted access onto adjacent arterials only when projected traffic volume, topography, fire safety, or length of street frontage and site conditions warrant an individual driveway.
- d. For existing properties or in redevelopment or infill situations on arterial streets, shared driveways between adjacent properties and the use of cross access easements or frontage roads should be provided unless it is unfeasible to do so.
- e. Existing driveways that are substandard in spacing and/or design should be removed or upgraded in conjunction with any substantial new on-site improvements or significant road upgrade improvements.

Policy 6.5 Develop Access Management Standards in Unincorporated Areas

- a. Access management standards shall be established to aid in preserving rural roadway corridors.
- b. Entrance spacing requirements and minimum property frontages along roadways for the issuance of building permits shall be based on the functional classification of the roadway.
- c. Minimum corner clearances to facilitate future intersection improvements shall be based on functional classification of the roadway.
- d. Minimum public road intersection spacing standards shall be based on the functional classification of the road to be intersected.

- e. While access to arterial roads from existing rural parcels may be allowed, rural residential developments shall be so sited so an individual residential parcel does not take direct access from an arterial road.
- f. Circle drives are generally not allowed on roadways in the unincorporated areas unless necessary for safety purposes, as determined by the County Engineer.

Policy 6.6 Access Spacing on City Streets

- a. On principal arterial streets, developments should consolidate driveways at 1/4 to 1/2 mile locations, and should align them with driveways and streets on the opposite side of the principal arterial thoroughfare, or offset them at least 300'.
- b. On arterial streets, commercial, industrial, or multi-family developments should consolidate driveways at 1/10 to 1/6 mile locations.
- c. On collector streets, developments should align driveways and street access (public and private) with other driveways and streets on the opposite side of the collector thoroughfare.
- d. Driveways to corner lot developments should be located beyond the left turn lane. The placement of driveways should not be within the intersection influence area (an acceleration lane; a deceleration lane; a right-turn lane; or a left-turn lane of an intersection of two public streets).
- e. Distances or offsets between driveways and access points may be adjusted only when a raised median exists.

Policy 6.7 Access Spacing on Roads in Unincorporated Areas

- a. Minimum frontage requirements shall be met in order to obtain a building permit.
- b. Entrances shall be situated to maximize safety for both the traveling public and the entrance user, as determined by the County Engineer.
- c. Shared entrances are encouraged and may be required by the County Engineer.
- d. Minimum frontage, entrance spacing and minimum corner clearance standards for each roadway functional classification are as adopted by the Board of County Commissioners.

GOAL 7: Pedestrian and Bicycle Transportation System

Establish an integrated system of bicycle and pedestrian improvements that provide for safe and efficient connections throughout Lawrence, and offers viable choices of travel.

Policy 7.1 Sidewalks - City

- a. Provide sidewalks on both sides of all streets (public and private).
- b. Provide sidewalks as a safe passage for pedestrians by creating a right-of-way that is separate from vehicular traffic. Sidewalks shall ~~should~~ be provided on both sides of the street. Sidewalks should be ~~or~~ constructed wider than standard widths in areas characterized by a combination of heavy vehicular traffic and a concentration of pedestrian destinations, such as shopping areas, schools, government offices, and activity centers like downtown Lawrence.
- c. Utilize sidewalks to encourage pedestrian activity, which is a defining criterion for the development of community or neighborhood identity.
- d. Sidewalks should be set back a sufficient distance from the curb on principal arterial, arterial, and collector streets to create the potential for a safe distance between pedestrians and adjacent automobile traffic.
- e. Sidewalks should be paved with a hard, all-weather surface that is easy to walk on. Alternative surface types, like bricks or pavers, should be considered when the street character, as defined by land use and street classification, calls for uniquely enhanced pedestrian environments.
- f. All sidewalks and curbs should accommodate pedestrians with disabilities, and other non-motorized modes of travel.
- g. Developments should be designed to provide planned non-motorized access to parks and open space.
- h. Encourage pedestrian activity and neighborhood interaction through the inclusion of pedestrian access to all parts of a neighborhood, subdivision, or development.
- i. In low-density residential, suburban, or rural areas, pedestrian linkage can be provided with pedestrian easements at the rear of residential developments or along natural drainageways.
- j. Provide pedestrian connections at the end of cul-de-sacs wherever possible.

Policy 7.2 Bicycles

- a. Develop a bicycle network in the City that provides improved access to downtown, the KU campus, commercial areas, and activity and recreational centers within the community.

- b. Bicycle facilities are desired on collector and arterial streets whenever possible. Off-street bicycle facilities should be provided parallel to, or near expressways and arterial streets.
- c. Where existing and projected traffic volumes are low, collector streets should be designated and signed as a bike route. On higher volume collector streets or where bicycle traffic is anticipated to be heavy, bicycle lanes are desired.
- d. Older parts of town with established development should be evaluated in terms of bicycle safety and connectivity.

Policy 7.3 Multi-Use Recreational Trails

- a. In newer subdivisions with a discontinuous street system, the subdivision should be designed to provide for direct, inter-connected continuous bicycle and pedestrian access to other parts of the community.
- b. Multi-use recreational trails should be a hard all-weather low-maintenance surface to accommodate walkers, joggers, bicyclists, and other non-motorized transportation modes. Multi-use recreational trails in park areas, along the river corridors, and adjacent to some drainageways can be of a natural surface to accommodate a variety of users.
- c. Grade separated crossings for multi-use trails are recommended at the intersection of freeways, expressways, and are desirable when multi-use recreational trails intersect with some principal arterial streets.

GOAL 8: Public Transportation System

Implement a coordinated public transportation system that offers a viable choice of travel that addresses the needs of individuals and the community as a whole.

Policy 8.1 Maintain and Enhance a Comprehensive Transit System

- a. Provide direct and continuous access to transit stops.
- b. Increase transit productivity by considering the need for sidewalks to transit stops, safe street crossings, lighting for security, bus stop benches and shelters, and turnouts onto roadways.
- c. A centrally-located hub should be planned and built that coordinates the community and regional multi-modal transportation system and that supports the existing land uses.
- d. Monitor and modify transit service in response to future growth, changes in development patterns, and user needs.

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