- INTRODUCTION
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- ROAD CAPACITY IMPROVEMENTS
- FUTURE RECOMMENDATIONS
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TRANSPORTATION FRAMEWORK

INTRODUCTION

Effective transportation systems are central to maintaining healthy, productive, and safe communities. The quality and availability of transportation services influence the type, timing, and density of development in the future. The transportation element of a comprehensive plan identifies the general location and extent of existing and proposed arterial, collector, and local streets. This chapter addresses the need for, use of, and characteristics of the City of Kearney's transportation systems. The transportation chapter describes the framework for the movement of people and goods, and supports the development patterns discussed in the Land Use Framework chapter.

The city has been and will continue to be dependent on its transportation network's mobility and accessibility. Successful planning efforts by the City of Kearney will be measured (in part) by the ability to resolve transportation issues and satisfy the demands of system users. Avoiding congestion and retaining internal trip convenience for residents and businesses requires a careful balancing of planning objectives. The goal of transportation planning is improved safety and efficient operations of the community's various modes of transportation.

Transportation planning is not limited to vehicular traffic. Multimodal transportation options are considered including "Complete Streets" best practices, pedestrian and bicycle facilities, and opportunities for future bus transit. All of these modes are viable means to safely and efficiently transport people and goods from one location to another.

Key Issues

Kearney is primarily a car-dependent city similar to other outlying communities along the I-35 Corridor. The land use pattern within Kearney is accessible primarily by car. Kearney has a number of major arterials or high-volume routes and a set of collector routes that feed into the network. A majority of the local street network (outside the historic grid pattern in the central city) has been developed in a typical suburban pattern.

There are many key issues relating to the transportation system that face the citizens of Kearney every day. These concerns can be defined as the following:

- Increasing traffic demand at the Interstate 35 and Route 92 Interchange
- Connectivity between the east and west sides of I-35
- Limited access management along heavily traveled segments of corridors (safety concern)
- Limited multi-modal transportation elements
- Lack of sustainable funding mechanisms from local and regional partners such as the Federal Highway Administration, Missouri Department of Transportation, Mid-America Regional Council, and Clay County

Past Studies

The City continues to aggressively advocate for a new interchange (approved in concept by FHWA and MoDOT) on I-35 at 19th Street/144th Street. This interchange would greatly improve regional access to/from the city, would radically shift traffic patterns throughout the city, and would facilitate desired future growth in the southern portion of the City. Stakeholders have indicated a desire to proactively plan for future interchanges, connections to them, and potential outer roads; more broadly, they have indicated the importance of proactively planning for future development patterns in order to complement a safe and efficient transportation network. If for some reason the interchange is not built, Route 92 will remain the primary gateway into Kearney, and will require additional capacity improvements in the future to ensure acceptable operations. Since its approval, the AJR has served the City as a transportation planning tool. Other docuemtns reviewed include:

- 2012-2013 paper crash tabulations on Major Routes
- 2012/2009 Traffic Impact Analysis, 92/I-35 Commercial Development, TranSystems
- 2010 Missouri Route 92/Shanks Road Pilot Truck Stop Conceptual Alternatives and Traffic Assessment, CFS
- 2009 Traffic Impact Study , I-35/92 Highway Commercial, Lutjen
- 2007 Draft Traffic Impact Study (Route 92), TranSystems
- 2005 Plan of Intent, I-35 Interchange Annexation Area
- 2005 Access Justification Report, I-35 / Route 92 / 19th Street, TranSystems
- 2004 Traffic Impact Study, Oakwood Estates of Kearney, HCI
- 2002 Interchange Feasibility and Break in Access Request, 2002, TranSystems
- 1998 Traffic Impact Study, Cedarwood and Hills of Westwood, TranSystems

FUNCTIONAL CLASSIFICATION

The City of Kearney does not currently have a Transportation Master Plan that defines the roadway system in place, but MoDOT's roadway classification system has been used to classify Kearney's existing roadways as a part of several traffic studies. The following definitions of each classification are a combination of MoDOT's Access Management Guidelines and The American Association of State Highway and Transportation Officials' (AASHTO) Green Book of highway standards. Most travel occurs through a network of interdependent roadways, with each roadway segment moving traffic through the system towards destinations.

The concept of functional classification defines the role that a particular roadway segment plays in serving this flow of traffic through the network. Roadways are assigned to one of several possible functional classifications within a hierarchy according to the character of travel service each roadway provides. Planners and engineers use this hierarchy of roadways to properly channel transportation movements through a highway network efficiently and cost effectively.

The Functional Classification System developed by the Federal Highway Administration (FHWA) is widely used to define the traffic carrying function of streets. There are several ongoing planning initiatives to combine the traffic functional classification of streets with their adjacent land uses to yield a more comprehensive array of streets. The context-sensitive design initiative, sponsored by the Federal Highway Administration, urges state departments of transportation to make the road context (land use) an important part of road design. The Missouri Department of Transportation (MoDOT) has developed a classification system based on a roadway's functionality. Classifications run from the most restrictive (Interstate) to the least restrictive (Local Road). These classifications are assigned to roadway segments based upon the current condition of the roadway. Classes also vary according to posted speed limit and whether the roadway has or is planned to have a restrictive or non-restrictive median.

Road Classifications

The roadway system consists of four basic classifications. The classifications are defined by the function that each road performs.

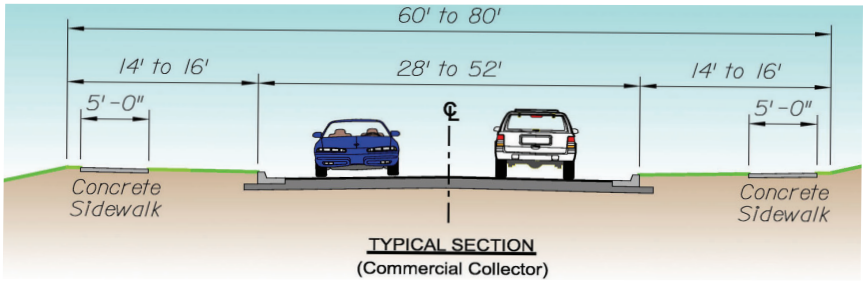
- **Interstate Freeways -** The highest functional classification is the interstate freeways, whose primary role is to provide high speed movement of vehicles throughout the country. I-35 performs this function, as well as providing commuter service for residents of Kearney who work throughout the Kansas City metro area.

- **Arterial Routes -** The next highest functional classification of roadways is the arterial routes. These roadways serve major centers, provide a high degree of mobility and can also provide mobility through areas.

- **Collector Streets -** Collector streets are the next tier in the functional classification system. These streets collect traffic from the local residential and commercial streets and carry it to the arterial routes. Collector streets are often designed to accommodate parking and bike lanes and some direct access to homes. Most vehicular trips on collectors should be less than one mile in length. If collector streets are designed as long continuous routes, then they often are used by motorists as high-speed arterial routes.

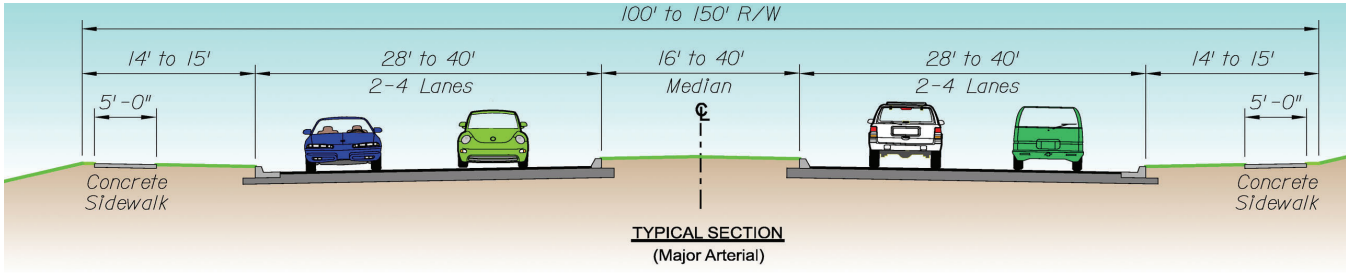
- **Local Streets -** The final, most common functional street classification is the local street. This type of roadway is intended primarily to provide direct access to residential and commercial driveways. Local streets are intended for low speed travel due to the predominance of driveway movements, parking maneuvers, and activity of pedestrians of all ages.

Although the functional classification of streets is defined by vehicular travel, pedestrian and bicycle travel must be also be accommodated by each of the functional classifications except interstate freeways. Sidewalks and trails and on-street lanes, as well as roadway features such as raised medians should be provided to keep our roadways from becoming barriers that restrict or even discourage pedestrian and bicycle travel between land uses and intermodal transit facilities.



Collector Street.

A commercial collector serves traffic to and from commercial, industrial or other urban areas, and distributes that traffic to arterial streets. These types of collectors typically have two to four lanes, with a 11 to 12-foot width (excluding curb and gutter) for each lane. There is usually not a median present on commercial collectors. The right-of-way varies from 60 to 80 feet, including 5-foot (minimum) sidewalks on both sides.



Arterial Street.

Arterial streets connect communities to other commercial or residential districts, and connect to major state and interstate highways. A typical major arterial has between four and six lanes, with a 11 to 12-foot width (excluding curb and gutter) for each lane. The width of the median varies from 16 to 40 feet and the right-of-way varies from 100 to 150 feet.

Growth of the Street Network

As development continues, it is possible that arterial and collector streets may be added or extended to develop a more comprehensive street network. The American Public Works Association (APWA), The American Association of State Highway Transportation Officials (AASHTO) and the Transportation Research Board, are practical resources for construction specifications, design criteria and guidelines for roadways and other public works projects. It is recommended that the city consider these types of industry standards when designing future roadway extensions, additions or other capacity improvements to maintain uniform conditions throughout the city's street network.

Shown above are APWA typical cross sections of a major arterial and a commercial collector, respectively.

Level of Service (LOS)

Some of the City's major thoroughfares are, or will soon be experiencing congestion related to capacity limitations.

Operating conditions on the City's thoroughfares are described by **Level of Service (LOS)** values that can be assigned to each route segment or intersection. These LOS values can be computed according to methods prescribed in the *Highway Capacity Manual (HCM)* prepared by the Transportation Research Board of the National Research Council. The LOS of road segments is generally related to the speeds of travel and the expectations of motorists as related to the functional classification of the roadway.

There are six LOS ratings named by the letters A through F. LOS A represents the best operating condition where motorists are free to adjust speeds and maneuver as necessary. LOS E is the maximum capacity of a roadway and LOS F represents the condition where traffic flow is severely congested and vehicle are often not moving, but stacked up in long queues. In general, the capacity of an urban street can be related to the number of lanes that the roadway provides.

- A 2-lane street can be expected to carry up to about 12,000 VPD or about 1200 vehicles per hour (vph).
- A 4-lane street should be able to serve about 12,000 to 24,000 VPD.
- A 6-lane street should be expected to serve about 24,000 to 36,000 VPD.

These general capacities are significantly affected by the number of left and right turning movements which are made to and from the particular street segment and whether there are separate left turn and right turn lanes provided for these movements.

Six Levels of Service

Level-of-service A - Represents free flow. Users are typically unaffected by the presence of others in the traffic stream. Freedom to select speeds and maneuver is extremely high and the comfort and convenience provided to motorists, passengers, bicyclists, or pedestrians is excellent.

Level-of-service B - Is in the range of stable traffic flow. The presence of other traffic begins to be noticeable. The freedom to maneuver and the level of comfort and convenience are somewhat less.

Level-of-service 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 conflicting traffic. The general level of comfort and convenience declines noticeably.

Level-of-service D - Represents high density but stable flow. Speed and freedom to maneuver are severely restricted and the user experiences a poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems.

Level-of-service E - Represents operation conditions at or near capacity level. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver is extremely difficult and must rely on the courtesy of others users. Comfort and convenience are poor and operations at this level are usually unstable because small increases in flow or minor incidents will cause breakdowns in the traffic flow.

Level-of-service 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-and-go movements.

Access Management

Another element that affects both the capacity and safety of thoroughfares is the type and number of access points. MoDOT has developed and adopted a set of ***Access Management Guidelines*** designed to improve safety, decrease delays, stimulate economic development, and decrease vehicle emissions.

The term "access" refers to the ability to enter or leave a business, residence, or land parcel from a public roadway via a connecting driveway. Proper spacing between driveways, signalized intersections and other roadways generate less traffic congestion and aids in traffic flow. Likewise, driveways or other openings where sight distance is insufficient are dangerous to both motorists and pedestrians. Access Management Guidelines are designed to promote safety and maintain the functional hierarchy of roadways.

Access management is a proactive step in anticipating and planning for the City's future needs. Access management principles can be implemented into the initial planning and design stages of projects. As future improvements are made to the City's street network, access management considerations can play an important role in improving safety and increasing capacity along Kearney's roadways.

MoDOT's guidelines include recommended distances between adjacent intersections, driveways, and median breaks, as well as minimum sight distance requirements for traffic entering and exiting side streets and driveways.

It is recommended that the City consider adopting these or similar guidelines when planning for future roadway improvements or new construction.

Specific access management steps that would benefit the City include:

- During thoroughfare improvement planning, consideration should be given to consolidating as many access points as possible along such routes as Highway 92 or Route 33 to improve capacity and safety. In many cases it appears that it will be difficult and expensive to widen thoroughfares to increase capacity. Therefore, other measures such as access management should be encouraged to maximize the capacity of available street widths.

- Recognizing the difficulty of widening many thoroughfares in the City, it is important to also consider development and improvement of parallel routes as well as encouraging the use of other modes of travel.

- Shared parking (the use of common parking areas by multiple buildings/sites of different ownership) should be encouraged wherever possible.

Should Kearney adopt either Access Management Guidelines, as some states and local governments chose to do, or Access Management Codes that have the additional weight of laws and ordinances behind them, it would be ideal to develop these guidelines specifically for Kearney. The basic principles outlined by MoDOT can provide guidance to the City. Specific judgment will need to be made as to which classifications, per MoDOT, are appropriate for Kearney because of the differing road classification criteria. MoDOT classifies roadways based on their priority for statewide travel, as opposed to a city focused on local or regional travel.

Source: City of Kearney. 92 Highway.

Ten Principles of Access Management

The Transportation Research Board's (TRB) Access Management Manual identifies 10 principles:

1. **Provide a specialized roadway system**
   It is important to design and manage roadways according to the primary functions that they are expected to serve

2. **Limit direct access to major roadways**
   Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function

3. **Promote intersection hierarchy**
   An efficient transportation network provides appropriate transitions from one classification of roadway to another

4. **Locate signals to favor through movements**
   Long, uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed

5. **Preserve the functional area of intersections and interchanges**
   The critical area is where motorists are responding to the intersection – i.e. decelerating, maneuvering into the appropriate lane to stop or complete a turn

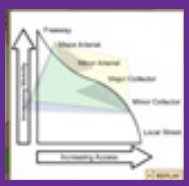
6. **Limit the number of conflict points**
   Drivers make more mistakes and are more likely to have collisions when they are presented with the complex driving situations created by numerous conflicts. Traffic conflicts occur when the paths of vehicles intersect and may involve merging, diverging, stopping, weaving or crossing movements

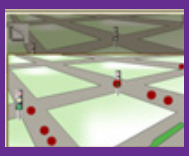
7. **Separate conflict areas**
   Drivers need sufficient time to address one potential set of conflicts before facing another

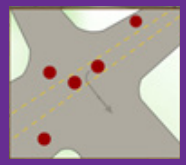
8. **Remove turning vehicles from through-traffic lanes**
   Turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area for an opportunity to complete a turn, thereby reducing the severity and duration of conflict between turning vehicles and through traffic

9. **Use nontraversable medians to manage turn movements**
   They minimize left turns or reduce driver workload and can be especially effective in improving roadway safety

10. **Provide a supporting street and circulation system**
    A supporting network of local and collector streets accommodates development, and unifies property access and circulation systems



CAPACITY IMPROVEMENTS

Roadway/Highway Network

Major Routes

Kearney's major automobile transportation routes include an interstate, two Missouri highways, and one city arterial. Each is discussed below.

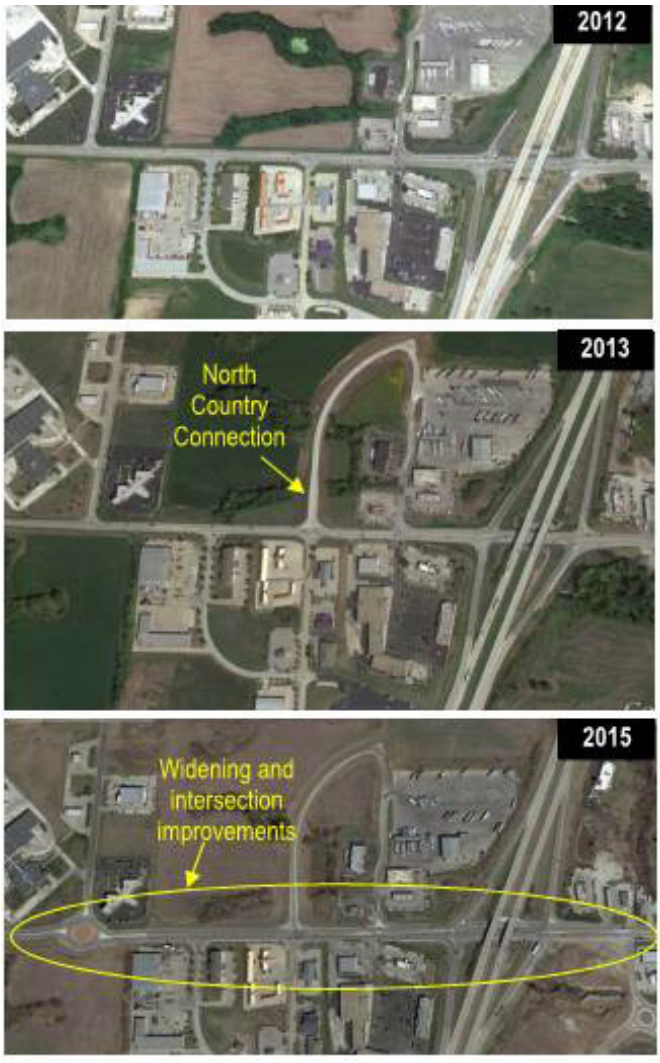
Interstate 35 provides the primary regional connection to Kearney. In the vicinity of Kearney, it is a four-lane north-south (slightly diagonal) facility. South of Kearney, I-35 carries 34,000 vehicles per day (vpd); north of Kearney, it carries 26,000 vpd. The city's sole direct access to I-35 occurs via a diamond interchange at Route 92. The nearest adjacent interchanges are Lightburne Street, approximately 6.5 miles to the south, and Route PP, approximately 7 miles to the north. In 2014, FHWA and MoDOT approved a new interchange on I-35 at 19th Street, but no funding has been identified for this interchange. One stakeholder has commented that "I-35 is the key to the future"; this comment emphasizes the regional lifeline that I-35 represents to the city of Kearney.

Route 92 is the major east-west connection through Kearney. As mentioned above, it currently provides Kearney's sole connection to I-35. It is also Kearney's primary commercial corridor. Route 92 carries 18,500 to 20,500 vpd east of I-35 within Kearney, but volumes are much lower west of I-35 – tapering from 7,800 vehicles per day near I-35 to 4,000 vpd outside the western city limits. A roughly one-mile stretch of Route 92 between Platte-Clay Way and Nation Road was recently improved by the City and MoDOT, see illustrations, including widening to four lanes east of Sam Barr Road, additional capacity improvements at the I-35/Route 92 interchange, and roundabouts at both Sam Barr Road and Nation Road. However, as the only Kearney roadway connecting to I-35, Route 92 will continue to have increased traffic pressure into the future. The proposed 19th Street interchange, mentioned above, was shown in a recent Access Justification Report to provide long-term relief to the existing interchange and the Route 92 corridor.

Even though capacity improvements have recently been made to the Route 92 corridor, some stakeholders still perceive congestion near the truck stop just west of I-35, and others see traffic congestion as a wider issue in the city. Congestion is a relative concept; what is acceptable in a dense urban area might be less desirable in a smaller city such as Kearney. Most of the intersections along Route 92 operate at typically acceptable levels of service today, but are expected to degrade to unacceptable operations by 2040. These issues could be largely relieved by the proposed interchange at I-35 and 19th Street, although further "spot" improvements could be needed along Route 92 in the long term. Most of the previous traffic analyses that have been conducted over the years in Kearney have focused on the Route 92 corridor; there are no other known major congestion issues in other parts of the city.

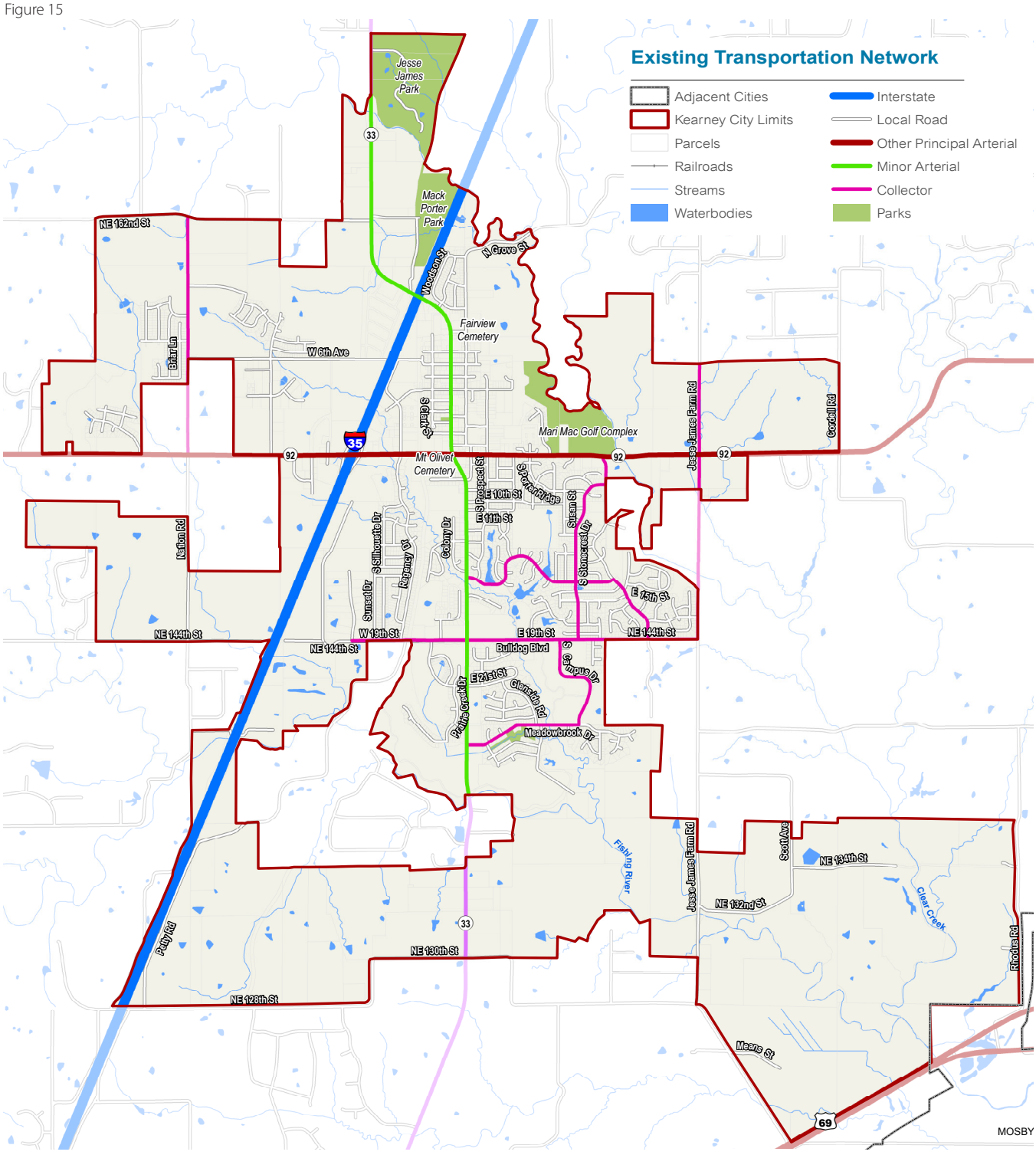
Another stakeholder-mentioned issue is access management along Route 92. Especially on the east side of I-35, there are several full-access driveways (including six within one 550-foot stretch). See the "Access Management" section for more discussion of the potential application of access management to Kearney's transportation system.

Recent Improvement to Route 92



Existing Transportation System Map (2015)

Figure 15



Source: MARC & Vireo GIS

Route 33 provides the primary continuous north-south connectivity within Kearney, and is also a secondary regional link, ultimately connecting to US-69 and further south into Liberty. Locally, Route 33 is one of very few streets that cross Route 92. Daily traffic volumes range from 4,300 vpd near Kearney's northern city limits, to 8,100 just south of 92, to 4,400 further south (roughly midway between Route 92 and the southern city limits).

19th Street, one mile south of Route 92, provides east-west connectivity in a growing part of Kearney. In addition to serving many of the City's residential subdivisions, it also provides direct access to Kearney High School, Southview Elementary School, and Hawthorne Elementary School. Its regional utility is currently limited by the fact that it dead-ends at I-35 (continuing as 144th Street on the west side of the interstate), but as mentioned previously, the City has (currently unfunded) plans to construct an interchange with I-35. Such an improvement will increase the importance of 19th Street/144th Street; therefore, planning along the remainder of the 19th Street corridor must account for its future status and use. Currently, 19th Street carries approximately 4,100 vpd east of Route 33, and 2,000 vpd west of Route 33.

Nation Road is a north-south road in the less developed portion of Kearney west of I-35. Although this narrow rural road carries less than 2,000 vpd, it will ultimately be an important connection if Kearney is to grow on the west side of the interstate (as has been contemplated).

Neighborhood Traffic Intrusion

Due to Kearney's relatively small size, it is no surprise that some of its more connective streets also happen to be residential streets. Cost constraints often mean that infrastructure must be as efficient as possible, often providing "through" connectivity even as it directly serves residential frontage. However, a consequence of such connections is that they often are viewed as sources of traffic intrusion by residences. One of the more notable examples of this is Regency Drive, a one-mile long suburban-type residential street that provides fairly direct connectivity between Route 92 and 19th Street. The northern and southern sections were connected in 2002/2003, and the street is a source of "cut-through" traffic complaints by local residents. Stonecrest Drive/Porter Ridge Road is another example of suburban-style residential streets creating a "shortcut" between Route 92 and 19th Street. As the City grows, these examples underscore the need for careful collector and subdivision planning, as well as the potential need for a citywide traffic calming policy. Emergency vehicle access is also a consideration in planning these types of streets.

Maintenance

According to the City's approved 2016 budget, about $350,000 (out of a total budget of approximately $15 million) is allocated for street maintenance, largely funded from the city's transportation sales tax, gas and vehicle sales taxes, and Clay County's Kearney Road District. Although the City does not have a formal CIP, a list of needed road improvements is developed by the Streets and Utilities Director annually, and citizen requests for road repairs are also worked into the maintenance program.

As the city grows, the need for a more formalized CIP, as well as additional funds for maintenance, will increase. It is recommended that the City begin pursuing these strategies.

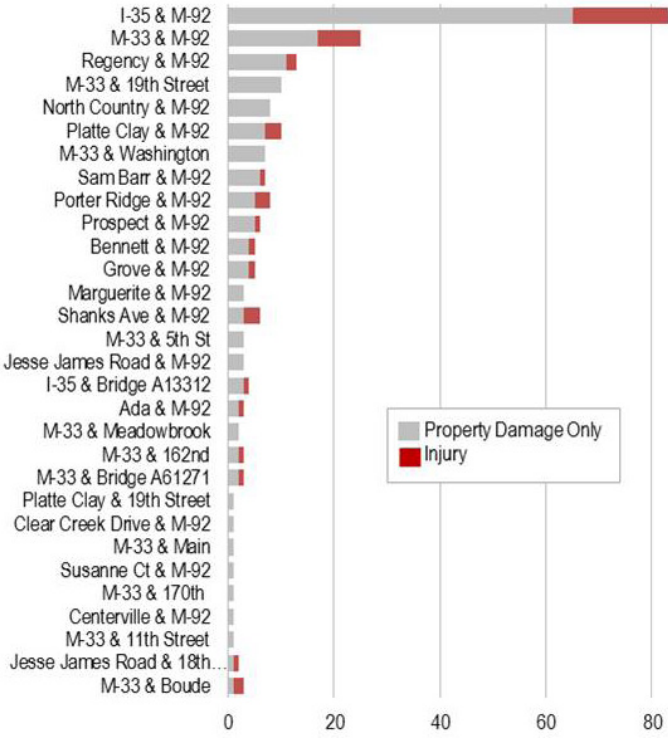
Safety

A comprehensive safety analysis has not been performed for Kearney, but the City provided a summary of crashes at major intersections for 2012-2013. This data set is not robust enough to allow for statistically valid conclusions (crashes are usually evaluated for at least a five-year period, and analysis usually factors in traffic volume to allow a more apples-to-apples comparison), but it does give an indication of trends. The Crash Table arranges the intersections by decreasing number of crashes, and a few items are worth noting:

- Intersections on Route 92 constitute 8 of the top 10 entries in the chart, and 12 of the top 15. It should be noted that these crashes were recorded before the recent improvements to Route 92, and it would be expected that safety at the redesigned intersections has likely improved in more recent years. It is also not surprising that the highest-volume road in the City would have the most crashes.

- The Route 92 / Route 33 intersection had the largest total crashes of any single intersection (the I-35 / Route 92 interchange includes two ramp intersections), and a fairly high proportion of injuries. The skew angle of the intersection, the sweeping right-turn lanes, and the tightness of some of the receiving lanes, may be contributing to these totals. A focused analysis could better uncover patterns.

Crash Totals for Key Intersections, 2012-2013



Source: HDR

Barriers to Connectivity

There are several natural and man-made barriers within Kearney that impede the ability to create future transportation connectivity. They do not necessarily prevent transportation connectivity, but they could add to the expense of constructing future connections. These barriers include:

- I-35
- Route 92
- Kaw River Railroad
- Fishing River
- Existing development

In contemplating future connections, these barriers must be taken into account. One stakeholder comment indicated the desire to "connect both sides of town". Overcoming these barriers can create a more cohesive community.

Future Plans/Initiatives

Stakeholders have indicated the importance of being ahead of growth with infrastructure, a goal that dovetails perfectly with the update of the Comprehensive Plan. Kearney is actively seeking to improve its transportation infrastructure. Key examples include:

- The City continues to aggressively advocate for a new interchange (approved in concept by FHWA and MoDOT) on I-35 at 19th Street/144th Street. This interchange would greatly improve regional access to/from the city, would radically shift traffic patterns throughout the city, and would facilitate desired future growth in the southern portion of the City. Stakeholders have indicated a desire to proactively plan for future interchanges, connections to them, and potential outer roads; more broadly, they have indicated the importance of proactively planning for future development patterns in order to complement a safe and efficient transportation network.

  If for some reason the interchange is not built, Route 92 will remain the primary gateway into Kearney, and will require additional capacity improvements in the future to ensure acceptable operations.

- One of the Mayor's Top Ten priorities, the Watson Drive/19th Street connection, was recently completed, providing access to the Shoppes of Kearney and the southern portion of the City, and a new north-south connection within the City. A related Top Ten priority is the development of improvements to 19th Street from its current terminus (near I-35) to Route 33. One stated goal of the 19th Street improvement is to reduce cut-through traffic on Regency Drive.

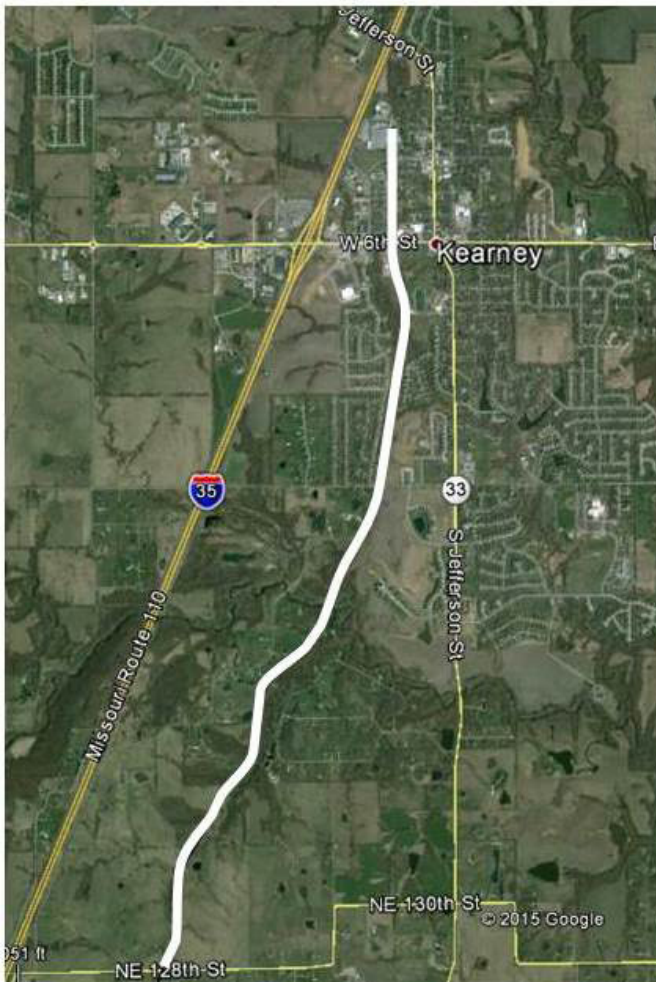
- The 2008 Clay County Comprehensive Plan includes a recommendation to "study and identify a corridor to provide an east-west major roadway connection between I-435 and I-35, generally in the vicinity of NE 120th Street, to accommodate future development." While this connection would be outside the current City limits of Kearney, it could cause traffic shifts that the City should be aware of – and could ultimately provide an opportunity to provide additional interstate access at the south end of Kearney. Thus, the City should actively participate in planning discussions regarding this future connector.

Freight Rail

The KAW River Railroad runs a short rail line north-south between I-35 and Route 33, shown below. It currently has three at-grade crossings in the vicinity of Kearney: at 19th Street, Route 92, and Washington Street. The line originates south of Kearney and terminates at the Ply Gem facility, located between Washington Street and Major Street. The line typically carries only one train per week, with no more than two per week. According to a representative at Ply Gem (the line's only shipper), there are no current plans to increase production at the facility such that it would increase the number of trains per week on the spur line.

According to the Federal Railroad Administration (FRA) Office of Safety Analysis website, the average train speed along this line, in the vicinity of the three existing at-grade crossings, is less than 10 mph. Additionally, the FRA has no record of any accidents occurring at any of the three existing crossings. The rail line also offers a potential industrial development opportunity, as illustrated by the land-use plan.

KAW River Railroad



Source: HDR

Public Transportation

Currently, the City of Kearney is not served by scheduled fixed-route transit. The nearest bus route, Kansas City Transportation Authority's (KCATA's) 34X (the "Shoal Creek / Liberty Express" with service to Downtown Kansas City), comes only as far north as Liberty. There are two Park-and-Ride lots with access to this route in Liberty, at Connistor Road/Stewart Road and Mississippi Street/Prairie Street. The 34X service runs twice in each direction during each weekday peak hour. MARC's Smart Moves plan (currently being updated) shows a future park-and-ride lot in Kearney and commute service down I-35. It is important that Kearney participate in Smart Moves and other regional long-range transit planning efforts, to ensure that needed transportation options are available for the citizens of Kearney – transportation-dependent individuals as well as those who might choose transit options for other reasons.

Kearney residents do have access to OATS Transportation, whose mission is to provide reliable transportation for transportation disadvantaged Missourians so they can live independently in their own communities. OATS provides rides for rural residents, senior citizens, people with disabilities, and people on Medicaid who need transportation for non-emergency medical appointments. Within Kearney, transportation to medical appointments is available on Mondays, Wednesdays, and Fridays. Transportation for essential shopping is available on the first, second, and third Tuesday of each month. Reservations must be made at least 24 hours in advance. OATS served 643 riders for essential shopping trips (one-way trips) and 36 riders for medical trips (also one-way trips) in 2014. The shopping trips occurred on 36 different days, so the average ridership on those days was 17.8. Ridership in 2015 was on a fairly similar pace in the first three quarters.

Although OATS is available, a stakeholder comment mentioned the need for taxi services for seniors. This highlights that there is currently not a full demand-responsive system in Kearney for the transportation disadvantaged; it is recommended that the City explore further partnerships to meet this need.

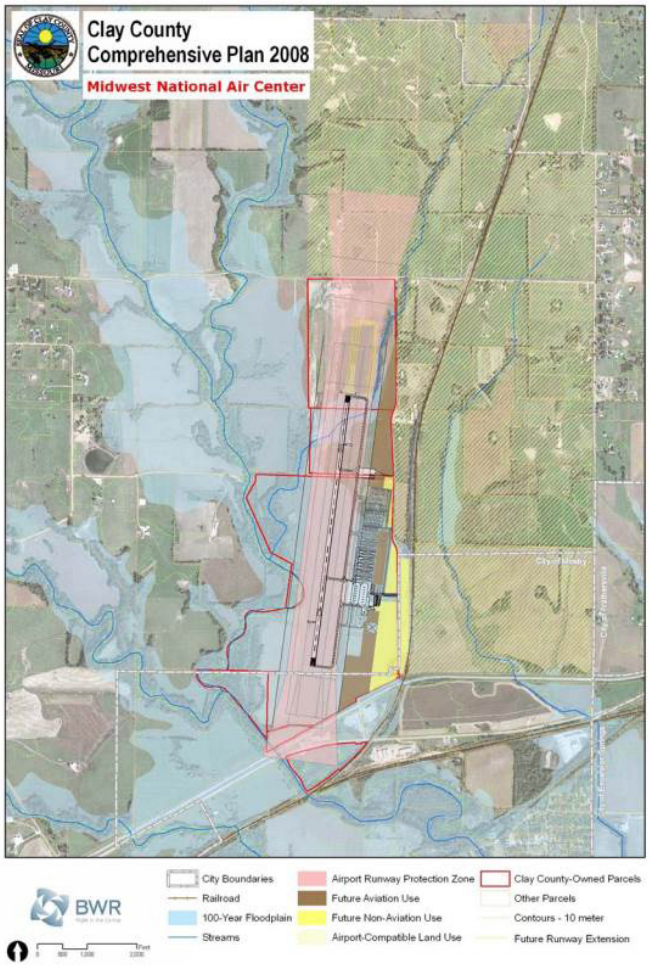
Intercity bus service (Greyhound and Jefferson Lines) runs along I-35 near Kearney, connecting destinations between the upper Midwest and Texas, but the nearest stops to Kearney are in downtown Kansas City (MO) to the south, and Cameron to the north.

Aviation

The Midwest National Air Center (MNAC), located near the intersection of Rhodus Road and US-69, was mostly annexed into the City of Kearney in 2008. The airport, operated by Clay County, has a single asphalt runway (5,504 feet long and 100 feet wide). The airport has 58 aircraft based on the field (45 single-engine, nine multi-engine, and four jets), and had 33 aircraft operations per day in 2012 (66% local general aviation, 25% transient general aviation, 8% air taxi, and less than 1% military). Access to the airport from the rest of the city is fairly remote, via Route 33, N 128th Street, and Jesse James Road, ultimately connecting to US-69.

The 2008 Clay County Comprehensive Plan envisions MNAC as an airport business park, citing the potential to absorb approximately 300,000 feet of commercial and industrial buildings over the next 20 years. The plan recommends coordinating with nearby municipalities to extend essential services to support industrial development around the airport. Given that the airport has been annexed into Kearney, this could involve transportation infrastructure improvements near and connecting to the airport by the City, as shown elsewhere in this Plan.

Midwest National Air Center



Source: Clay County.

Source: Vireo. Example Municipal Airport.

FUTURE TRANSPORTATION RECOMMENDATIONS

The various types of streets outlined in the Proposed Street Map fit together to form a network of streets to serve the needs of each land use throughout the City. As the City of Kearney grows, the demands upon the street network will change. It is important that the future land use pattern be coordinated with decisions made regarding street classifications in the future.

Proposed Street Map

In addition to the improvements noted below, the Proposed Street Map identifies additional roadway corridors and helps reserve them for future improvements as new development takes place. Without this type of plan in place, the continuity and connectivity of existing and future roadways in the areas surrounding Kearney cannot be guaranteed.

Using The Proposed Street Map

The Proposed Street Map illustrates recommended capacity improvements and the approximate location and alignment of existing and future arterials and collectors that the city can integrate into their long term vision and goals, dependent on the type and intensity of surrounding development.

- **Context:** The map does not show every street that would be needed for future development. The local street pattern should be determined as development occurs, using the basic principles described in this Framework and the Form & Character of Development Framework.
- **Conceptual:** The routes shown are conceptual until a Transportation Master Plan is completed. The exact path of these streets may vary depending on the details of development as it occurs. The priority is to maintain the principle of connectivity, to provide access to the key connecting points, and to follow the general path shown in the map. Minor modifications can be made as needed on a case-by case basis. Detailed engineering studies will be needed before undertaking any new road construction.
- **Street Types:** The map designates streets by their functional classification, which is a description of the purpose each type of street is intended to serve.
- **Reserve Right-of-way:** The City should seek to establish right-of-way and setback requirements for each type of street; establishing criteria for or changes to Subdivision Regulations for dedication of right-of-way.
- **Build with Development:** The City should work with developers and property owners to reserve Right-of-way for major streets in advance of development.
- **Property Owners:** Some new roads run through property that is privately owned, and their implementation will therefore depend on the decisions of the property owners.
- **MoDOT:** Interstate and state highways are subject to separate transportation studies by the Missouri Department of Transportation (MoDOT).

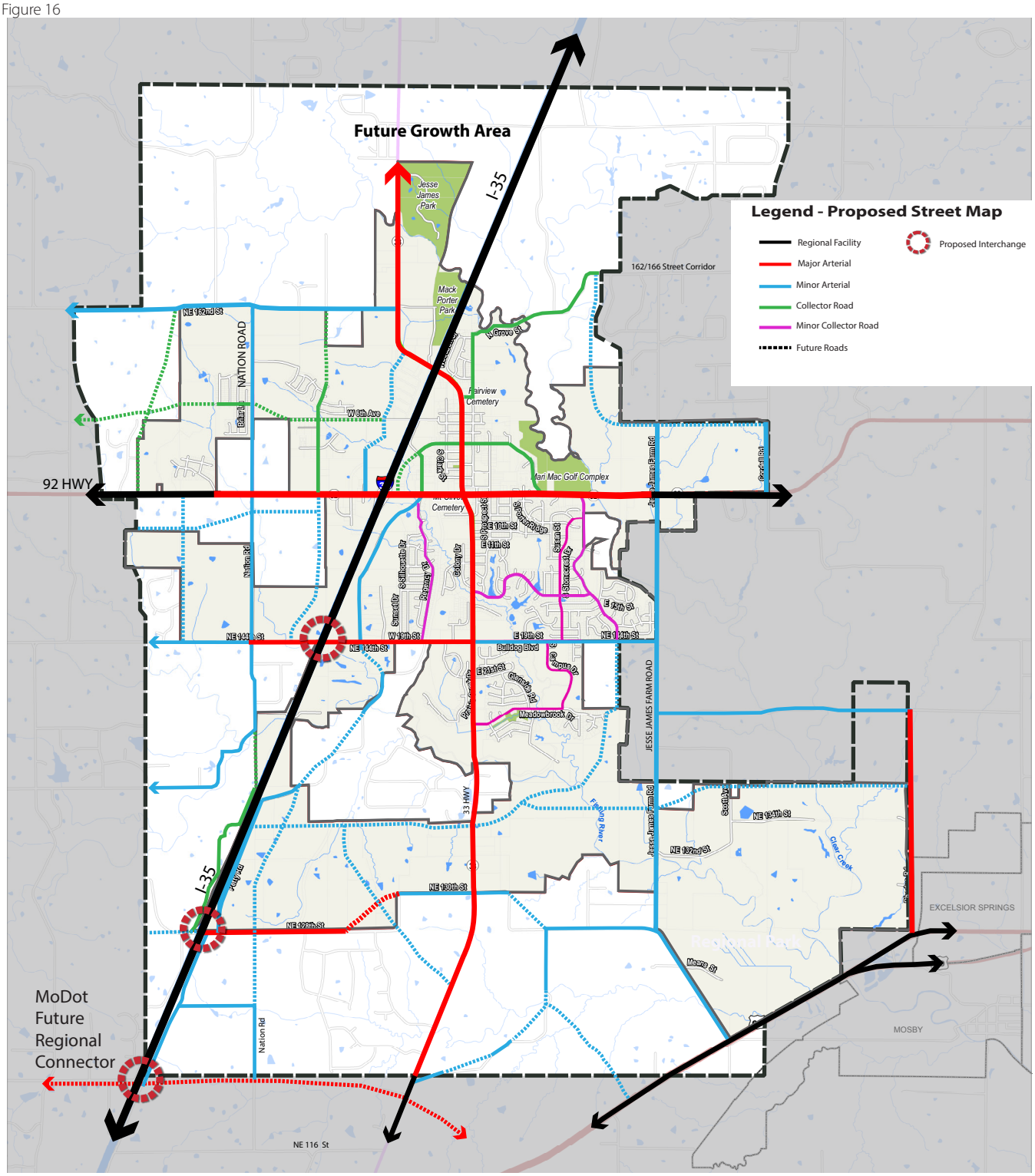
Summary of Recommendations

Several recommendations have been made throughout the subsequent sections, and are summarized here:

- It is recommended that the City consider adopting access management guidelines when planning for future roadway improvements or new construction, and begin to implement access management principles into plan approvals and project designs.
- It is recommended that the City conduct a focused safety study at the intersection of Route 33 and Route 92, to determine if safety improvements are needed.
- It is recommended that the City participate in the ongoing regional collaboration regarding an east-west connection from I-435 to I-35.
- It is recommended that the City consider a taxi coupon program, or something similar, to provide transportation for the transportation disadvantaged.
- It is recommended that the City study the need for roadway access to the Midwest National Air Center within or near city limits (an alternative to US-69).

Proposed Street Map (2016)

Figure 16



Source: Vireo & HDR

The Proposed Street map shows the general alignment and classification of streets and highways of an ultimate urban arterial network. The purpose of this map is to guide development of the arterial street network and to identify appropriate street rights-of-way to be secured at the time of subdivision platting.

The Proposed Street map neither controls, nor dictates improvements to these facilities. Standards and plans for these facilities are controlled by their respective jurisdictions. The Proposed Street map domain is restricted to facilities controlled by the City of Kearney. However, these other facilities are important to transportation connectivity in Kearney, and are therefore appropriate to include on the map as information. In addition, the map neither controls, maps, nor dictates standards for collectors or local streets. Such facilities are addressed in the City standards.

INNOVATION IN DESIGN

Kearney's new direction includes changing the way we do things. Developing systems that provide a better balance between modes of travel will better accommodate existing and future populations, but is not easy. The following includes best practices in design that can aid in development of a multi-modal system for Kearney.

Policies to Create Complete Streets

Local and state governments have the power to make communities healthier by implementing laws and policies that support "complete streets": streets that are designed for all users, not just automobiles. Complete streets policies change how streets are designed and built. Each street doesn't require the same features to be safe for active travel. A low design speed may be enough to make some streets safe; other streets may require elements such as frequent crosswalks, pedestrian signals, median islands, sidewalks, and bicycle lanes. Because complete streets features are only required when streets are newly built or reconstructed, their cost is incorporated into budgeted transportation projects.

- **Transition:** The transition to "Complete" or "Livable" streets could occur in strategic locations in Kearney incrementally as roads are re-designed.
- **Example Typologies:** In lieu of an existing "complete" or "livable" streets analysis, this Plan provides example typologies, which are a way of evaluating corridors to get more out of the existing street system, manage maintenance costs, and enhance transportation options better.
- **Analysis:** Long-term, it is recommended that the City conduct a "complete" or "livable" streets analysis of all major thoroughfares to determine what measures can be implemented to manage travel speeds and accommodate pedestrians and bicycles.
- **MoDOT:** Recommendations made for interstate and state highways are subject to separate transportation studies by the Missouri Department of Transportation (MoDOT) and will necessitate a collaborative partnership to achieve the long-term goals of this Plan.

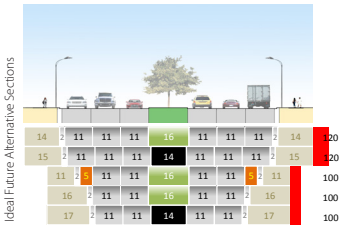
Example Complete Street Typologies

These street typologies attempt to strike a balance between functional classification, adjacent land use, and competing travel needs. The typologies will allow the City much more flexibility in implementing new street design in the short-term.

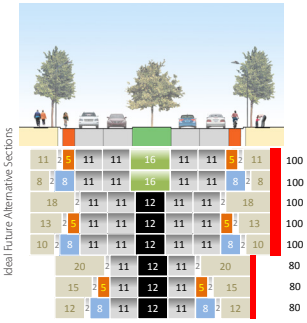
Each of the Street Typologies has a unique context and intent, and a series of applicable typical sections. The choice of the appropriate section is a function of other contextual parameters and may vary by segment. The graphics which follow illustrate the typical sections, with widths (in feet) shown for elements within the section, as well as the overall right-of-way for each section.

The example street typologies include:

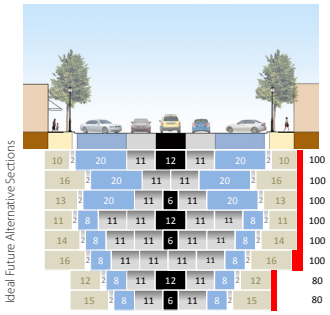
Thoroughfares

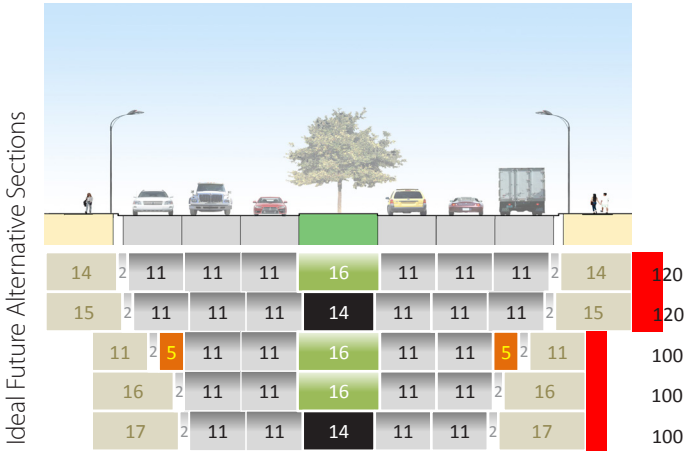


Main Streets



Local Links





Source: HDR & Vireo

Typical Context

Commercial areas with many small strip centers and pad sites with buildings typically set back behind front parking lots.

Intent

Emphasis placed on vehicular mobility and "through" or "destination" traffic.

Example 1: Thoroughfare

These roadways typically serve commercial areas that contain many small retail strip centers with buildings set back from front parking lots. Because of this, thoroughfares have many intersections and driveways that provide access to adjacent businesses. Historically, this type of street is highly auto-oriented and tends to discourage walking and bicycling. On-street parking is infrequent.

Thoroughfares are designed with multiple lanes divided by a landscaped median or a continuous two-way left turn lane in the center. Thoroughfare streets are designed to balance traffic mobility with access to nearby businesses. However, because there are so many intersections and access points on thoroughfare streets, they often become congested. Improvements to these streets should come in the form of access management, traffic signal timing and creative intersection lane capacity improvements.

Priority Elements

- Number and width of travel lanes
- Medians and Transit accommodations (where appropriate)
- Pedestrian and Bicycle facilities
- Two-way center left-turn lanes (where appropriate)
- Consolidated driveways
- Synchronization of traffic signals

Typical Section Elements Legend

The typical section legend includes, from left to right:

Pedestrian/ Amenity/ Utility Zone | **Curb/ Gutter** | **Parking** | **Bike Lane** | **Travel Lane** | **Two-Way Left-Turn Lane Island** | **Raised Median**

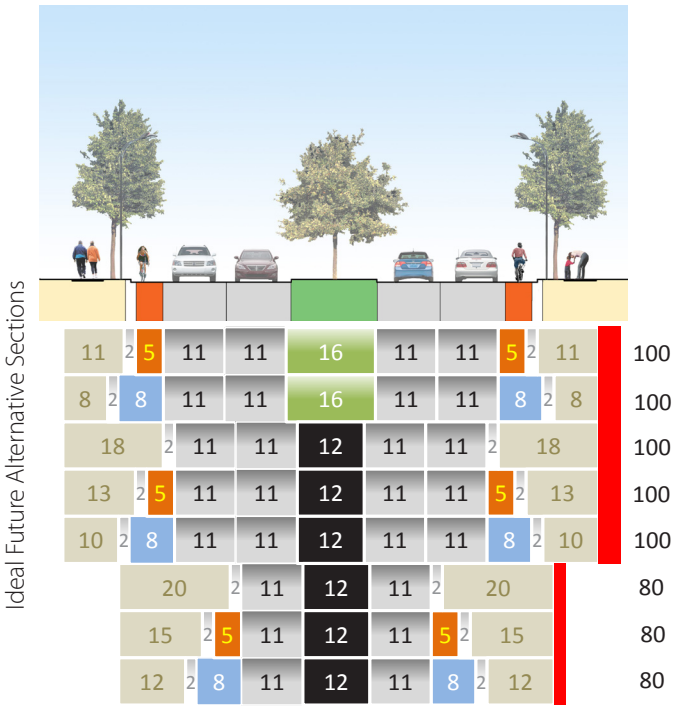
Example 2: Local Link

Local Link streets strengthen neighborhood cohesion, promote alternative transportation, calm traffic and connect recreational destinations. Local Link streets tend to be more pedestrian-oriented than commuter streets, giving a higher priority to landscaped medians, tree lawns, sidewalks, on-street parking, and bicycle lanes than to the number of travel lanes.

The example Local Link street shown at right, consists of two to four travel lanes and elevate the priority of pedestrian and bicycle accessibility.

Priority Elements

- Sidewalks, Tree Lawns; Street trees
- On-street parking, Landscaped medians
- Bike lanes on designated bicycle routes
- Number and width of travel lanes
- Pedestrian islands, Narrower travel lanes
- Traffic circles and roundabouts, Diverters
- Reduced pedestrian crossing distances at intersections, using curb extensions, traffic islands, and other measures



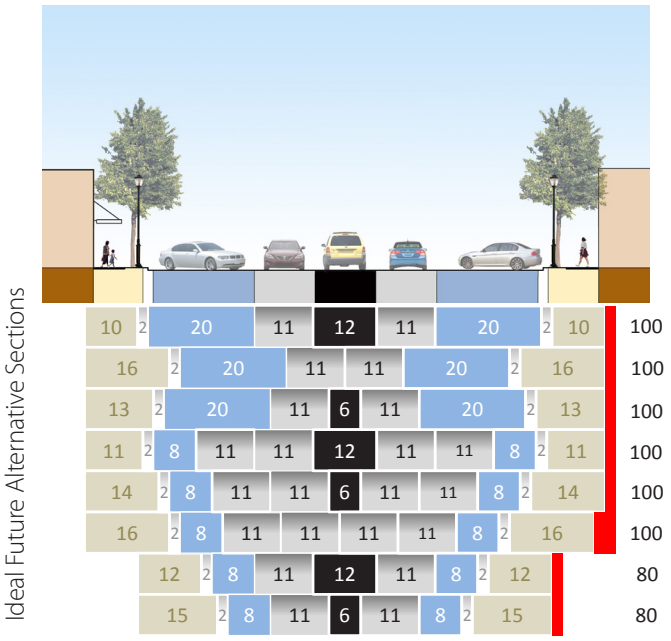
Source: HDR & Vireo

Typical Context

High-quality public spaces offering a variety of building types and land uses-particularly employment-oriented mixed-use-generating activity and diversity.

Intent

Form a highly interconnected network, dispersing "through" traffic and providing convenient routs for pedestrians, bicyclist, and future transit users.



Source: HDR & Vireo

Typical Context

Unique activity centers, often include a variety of land uses, most notably retail-oriented high intensity mixed-use.

Intent

Create a reduced emphasis on automobile traffic and heightened pedestrian environment.

Example 3: Main Street

Main Streets tend to serve high intensity retail and mixed land uses such as downtown and regional/neighborhood centers. Main streets are designed to promote walking, bicycling, and future transit within an attractive landscaped corridor. Generally, main street activities are concentrated along a two to eight block area, but may extend further depending on the type of adjacent land uses and the area served. Main Streets can be designed with two to four travel lanes, although they typically have only two lanes. On street parking usually is provided to serve adjacent land uses. Unlike typical strip commercial developments, Main Streets offer the ability to park-once and walk amongst various destinations, thus reducing arterial trip-making. The key is to create convenient parking that is on-street or provided in a shared public parking lot. In order to ensure the walkability of a Main Street, careful consideration must be made to the design elements and amount of parking lots. When emphasizing street frontage walkability and bike/pedestrian neighborhood connectivity, tree lawns and detached walks receive priority over travel lanes. Within the parking lane tree wells may be used to create a double row of street trees in combination with a tree lawn. To further create a pedestrian friendly atmosphere, Main Streets typically have wide sidewalks, street furniture, outdoor cafes, plazas, and other public spaces.

Priority Elements

- Wide sidewalks with pedestrian plazas, accommodates transit
- Reduced pedestrian crossing distances at intersections, using curb extensions, traffic islands, and other measures
- Bicycle facilities, (often mixed with traffic due to low speeds), Tree lawns, On-street parking
- Width and number of travel lanes; Narrower travel lanes
- Alternative paving material, Raised intersections; High-visibility crosswalks

PEDESTRIAN & BICYCLE NETWORK

Pedestrian and Bicycle Network

Pedestrian and bicycle travel is often described using the term "Active Transportation". Stakeholders have indicated a desire for more robust Active Transportation options in Kearney. "Walkability" is a term that has been touted by stakeholders, and some stakeholders have asserted that such options enhance the quality, desirability, and health of a community.

Conversely, some stakeholders are concerned about overemphasizing Active Transportation when financial resources are limited. As the plan evolves, these priorities must continue to be explored.

Sidewalks

The fundamental facility for pedestrian travel is the sidewalk. Kearney's Subdivision Regulations state that:

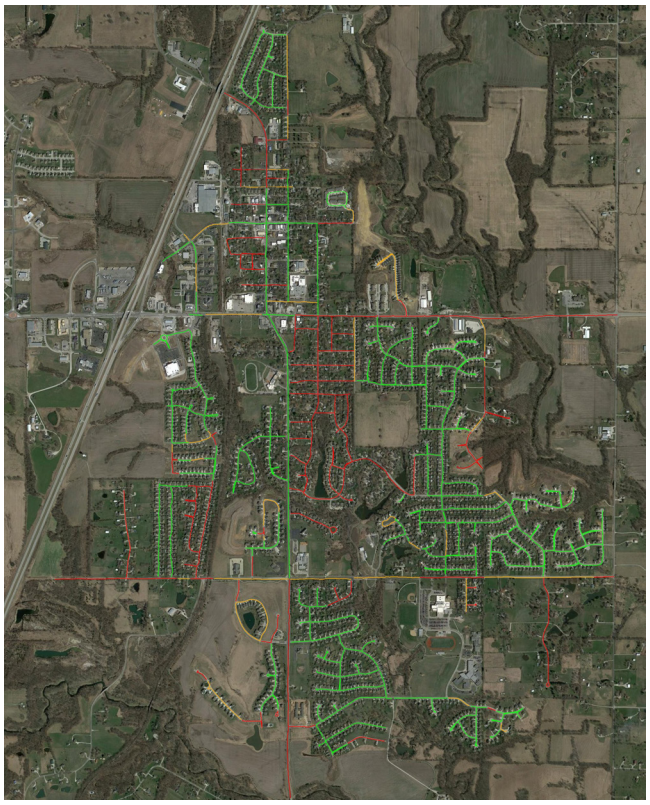
[A subdivision] builder shall install sidewalks adjacent to and on both sides of all public streets. Such sidewalks shall be not less than four (4) feet in width …. The developer/subdivider is responsible for installation of sidewalks along open space tracts at the time of installation of public improvements.

Thus, the City's current policies support sidewalks on both sides of all public streets. The adjacent image illustrates the status of sidewalks for most of the streets in Kearney east of I-35. Some of the older subdivisions, and even a few of the arterials (in less-developed areas) have no sidewalks. Most of the newer subdivisions do have sidewalks on both sides of the street. The east-west arterials, Route 92 and 19th Street, present a mixture but have almost no segments with sidewalks on both sides. Stakeholder comments have pointed to a need for sidewalks on Route 92, and more broadly, the need for sidewalks "everywhere". Thus, there is a gap between the ideals represented by both the City's regulations and citizen desires, and the current state of sidewalk connectivity in Kearney.

Note that while a four-foot sidewalk width meets minimum accessibility requirements, widths of five feet or greater are much more conducive to pedestrian comfort and usage.

The Mayor's Top Ten priorities for 2015-2019 included new sidewalks on Route 92 from Route 33 to Porter Ridge Road. The fact that this priority is featured among items such as a new interchange and downtown revitalization underscores the importance of pedestrian safety and connectivity to the city.

Sidewalks in Eastern Kearney



Other Bicycle Facility Types

A suite of other types of bicycle facilities is available for communities interested in improving their bicycle-friendliness, and can be generally grouped in two categories:

- On-Street facilities include bike lanes (striped and designated for bikes) and shared roads (roads designated by signs and or "sharrow" markings to be shared with cyclists).

- Off-Street facilities include sidepaths (multi-use paths adjacent to the street), and separated bike lanes (physically separated from the roadway; sometimes known as "cycle tracks").

At this time, Kearney does not have such facilities, but they should be considered as the city continues to expand. Many stakeholders are in support of additional bicycle options, but there have also been comments along the lines of "bikes and cars don't mix". Some of the additional options mentioned above maintain a separation of these two modes, while enhancing connections for bicycles within the street right-of-way.

High Bicycle Demand Corridors

Strava Labs has developed a "global heat map" that gives an indication of bicycle usage around the world. It is not exhaustive, or necessarily statistically representative, because it only is able to report data by riders who use the Strava app while riding. However, it can be a very useful source of tendency or demand data in absence of other bicycle count data. The Strava heat map below, shows the Kearney area, and yields the following observations:

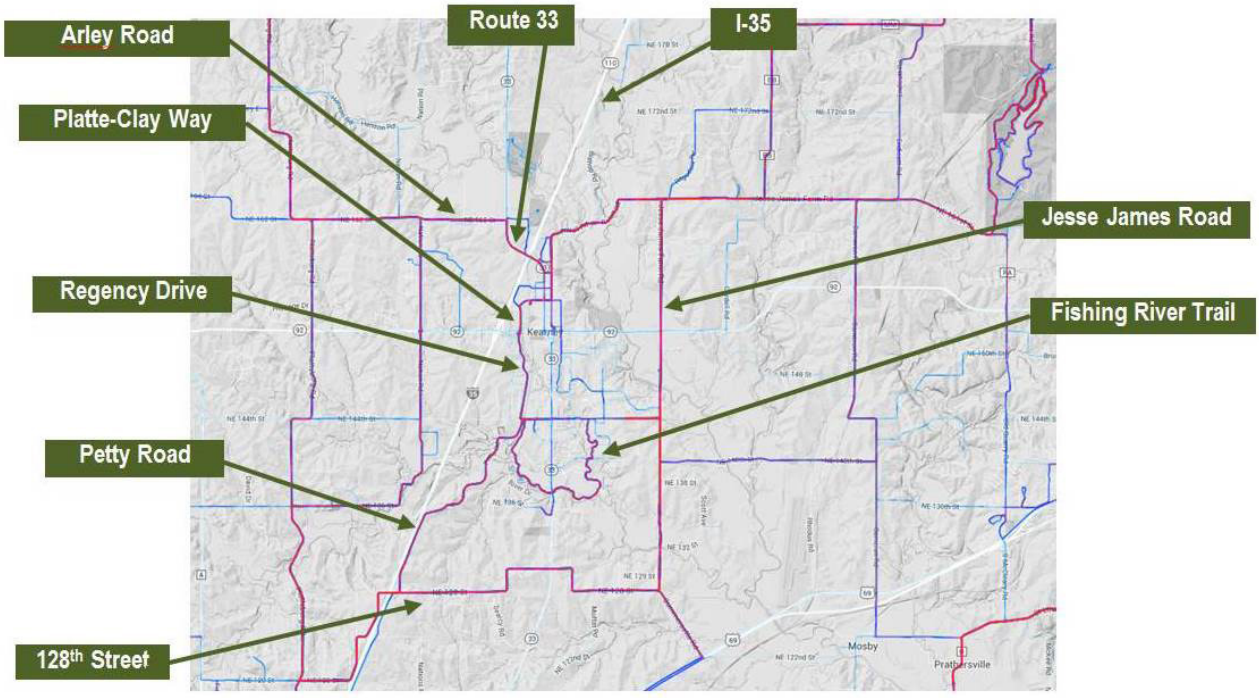
- The Fishing River Trail appears to be fairly heavily used, while the Mack Porter and Jesse James Trails are less so.

- Jesse James Road is one popular North-South connection on the east side of town.

- An interesting north-south route through town is Platte-Clay Way, to Regency Drive, to Petty Road – ultimately connecting to 128th Street.

- 128th Street represents an important route for bicyclists to cross I-35 south of town, and Route 33 serves a similar function north of town. Route 92 does not appear to be a popular facility for this purpose.

Strava Heat Map - Bicycle Travel



The City can take steps to increase opportunities for walking and bicycling throughout the community for both recreational and commuting purposes. Adding linkages to existing and newer areas of the community, sidewalks along established corridors, and establishment of on-street bicycle routes may be needed in order to provide direct and safe routes for pedestrians and cyclists. In the future, existing greenways in the unincorporated area could aid in the expansion of a citywide trail system and provide connections to many neighborhoods.

This Plan also recommends the creation of a community-wide trail network, intended to increase pedestrian travel, encourage active lifestyles and expand year-round park and recreation options for all ages. Trail locations and sidewalk improvements should link to the City's roads, downtown, schools, churches, businesses, recreational facilities and neighborhoods. The general location of recommended trails and greenways is shown in the Parks and Trails Framework.

Pedestrian Enhancements Tools

The future use of pedestrian and bicycle enhancements should focus on improving non-vehicular access to new centers and existing destinations. Priority locations for enhancements should be routes from neighborhoods to schools and along connecting corridors. These enhancements come in the form of better coordination between public works and private development to create a cohesive pedestrian and bicycle environment, complete sidewalk connections, and reduce neighborhood street speeds with traffic calming.

The level of pedestrian environment quality or standard should vary by the type of activity area. As an example, a high pedestrian performance level will be of greater importance in Downtown than in outlying, lower density subdivisions with light vehicular and pedestrian traffic.

Pedestrian Districts and Areas

The following activity areas, with differing levels of quality, are proposed:

- **Pedestrian Districts -** The primary area within the City of Kearney that qualifies as a pedestrian district is the Downtown area. Pedestrian Districts typically include locations that residents consider as places to go to, walk around, shop, eat, or conduct business. Pedestrian standards should be high in the Downtown pedestrian district. In addition to the need for direct, continuous sidewalks where it is safe to cross the street, this area would require higher levels of visual interest and amenities to attract residents and visitors. Future pedestrian districts could be added to this designation where there are planned future mixed-use activity areas.

- **Commercial Centers and Corridors -** These areas tend to be located along arterials and aggregated at various locations along the corridor, particularly where major arterials intersect. In the past, these locations have been more of the strip commercial and "L" shaped neighborhood shopping center style developments, which provide relatively poor pedestrian environments. Future goals include improving the directness and safety of the pedestrian network to, from, and within these locations.

- **Schools -** Whereas it is not necessarily critical for routes to schools to be picturesque and visually captivating, for the future, there are basic pedestrian needs for the student, including a safe and secure continuous sidewalk with safe street crossings and direct connections to neighborhoods. Cities across Missouri have been participating in the federal "Safe Routes to School" program which funds studies that address these issues.

FUNDING

Funding, or specifically, lack thereof, is a key concern for not only the City of Kearney, but the State of Missouri. The main thoroughfares within the City of Kearney are owned and maintained by MoDOT, and MoDOT and the City have traditionally been good partners regarding transportation infrastructure. However, due to unprecedented funding challenges with the State of Missouri, MoDOT simply will not be able to distribute necessary funds to provide all the needed capacity improvements at I-35, Highway 92, and Route 33, or other State owned and maintained facilities.

As the City moves forward with its transportation planning, it is essential that the leaders continue to work with the community to identify what the needs are and to receive input. The planning efforts should be prioritized to develop a sustainable plan to achieve growth. Underfunding of transportation infrastructure is a nationwide problem, and the City should continue to work to identify future funding partnerships or opportunities with MoDOT, Clay County, Mid-American Regional Council, and private developers.

Roadway Maintenance.

Roadway Maintenance.

Alternatives

Partnerships with local business groups and community organizations are essential to ensure that special streetscaping associated with connecting corridors and other infrastructure are properly maintained. The City should institute a variety of tools to allow business and residential property owners to assist in constructing and maintaining the infrastructure and amenities developed.

Bicycle parking should be in a secure location close to entrances.

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