

PART I – Chapter 4: TRANSPORTATION

1.0 BACKGROUND

Throughout its history, transportation access and the location of routes have contributed dramatically to the capacity and pattern of growth in Johnson County. An excellent system of highways and major thoroughfares has facilitated this growth - first by linking new residential areas with existing employment and commercial centers, and then by enabling the development of new suburban employment centers, especially retail and offices.

Perhaps the single-most important factor shaping Johnson County's overall major road network occurred nearly 150 years ago in 1855. It was then that the original survey of the territory divided the County into a grid of one-mile square land sections. A "right-of-way" (ROW) spacing of at least 20-ft. reserved on each side of each section line became the initial basis for the County's future major road network with enlarged ROWs serving thousands of motorists daily (e.g., Metcalf, Antioch, Switzer, 95th, College Boulevard, and 199th). The effect of this section line layout is evident today and will continue to play an important role in shaping the location of future roadway improvements as well influence the pattern of future development within the unincorporated area.



In general, major road improvements typically occur in a progression as an area develops. For example, an original 2-lane gravel road is improved to a 2-lane asphalt road then ultimately to a 4-lane thoroughfare after the area has been annexed into a city and become fully developed.

2.0 RURAL TRANSPORTATION SYSTEM

The objective of a well-planned transportation system is to allow for safe, convenient, and efficient travel. The County strives toward an overall transportation system that meets these objectives.

The transportation system serving the urbanized portion of Johnson County fully exemplifies these objectives. Highways and major arterials serving this portion of the County provide direct access and convenient mobility for residents, businesses, and visitors. Limited public transit service is available to some of the smaller communities as well as to all the major cities in the County. Railroads and airport service support the County's growth in industrial and commercial development by providing means for cost-effectively distributing goods and services. A growing network of linked pedestrian sidewalks/trails and bikeways has become an important mode of transportation as well as an amenity for the County's suburban residents.

In contrast, the transportation system serving the unincorporated area functions at a much lesser capacity. This is because the rural road system has a limited ability to support large traffic volumes since it is intended to serve the comparatively low traffic volumes generated by a smaller and more dispersed population than

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found in the urbanized areas of the County.

Other factors that directly contribute to this condition of limited road capacity and traffic flow within the unincorporated area includes:

1. Limited County resources to maintain a total of 518 miles of rural roads, of which, 248 miles are gravel-surfaced and 270 miles are asphalt-surface.



Nearly half of the roads within the unincorporated area are gravel-surfaced.

There are over 120 bridges in the rural area maintained by the County.

- Gravel roads are not suitable for high traffic volumes. The Road Maintenance Budget annually allows for upgrading only one mile of gravel road to asphalt surface.
- The County Assistance Road System (CARS) program is intended to promote inter-local cooperation between the County and the cities in the planning, maintenance, and construction of streets and associated roadway improvement and to establish a program structure through which the County may provide financial or

other assistance to the cities. Because of limited funding for CARS and because of the program's focus on cities, only a small amount of CARS funds is available annually for rural road improvements.

- Unlike many cities, the County does not currently have an excise tax to require developers to help defray the cost of improving roads to serve development within the unincorporated area.
2. Scattered development within the unincorporated area is difficult to serve with a consistent level of service.
 3. Many County section line roads have only 40 ft. of right-of-way. This is 80 ft. less than the minimum 120 ft. required for major road installations. Thus, major improvements to roads in these locations often require the added cost of land acquisition.
 4. Most rural roads lack shoulders and have open ditches, thereby necessitating low speed limits and limited capacity.
 5. Many rural roads have limited connectivity because of missing links due to geographic constraints such as steep hills or unbridged creeks.
 6. Numerous land parcels have been divided into long and narrow "piano key" type lots that line many section line roads. The individual driveways resulting from these separate residences create potential traffic hazards, especially as traffic is anticipated

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to increase significantly on many of these roads as further development occurs. This type of lot also often limits the potential for future road connections into interior portions of land sections.

7. Some older subdivisions have been laid out in an isolated manner lacking tie-ins to surrounding lands, thereby precluding their connection and access to adjoining developments. The result of this is less convenience for residents and more travel time, fuel consumption and pollution along with an excessive number of intersections onto major thoroughfares.
8. Older private roads often pose a land use concern because: 1) the County is mistakenly assumed to be responsible for maintenance; 2) poor alignment or connection to future streets or adjacent development; and 3) design and construction that is not in accordance with current County standards. Maintenance of private roads is the responsibility of the property owners. New private roads allowed today must meet higher standards, thereby increasing the quality while reducing the number of new private roads proposed or constructed.
9. Long drive distances and lower operating speeds due to road conditions may affect the response times of emergency vehicles within portions of unincorporated Johnson County.

In general, some of the factors listed above are anticipated to continue, thus continuing to limit the County's rural road

system to primarily serving residents and directing through traffic to the few major existing or planned thoroughfares.

Due to low traffic counts, it is difficult to justify major road expenditures to improve some rural roads. The County, however, recognizes its responsibility to protect the future traffic capacity of roads by restricting access and preventing incompatible land uses adjacent to major arterials.

Johnson County recently approved the *Comprehensive Arterial Road Network Plan* (CARNP) for upgrading some of the major arterial roads within the unincorporated area. The following provides a summary of CARNP.

3.0 CARNP

CARNP was adopted January 7, 1999, by the Board of County Commissioners as its "plan for future roadways in southern and western Johnson County." Board Resolution No. 001-99 adopting CARNP is provided in Appendix I, and is hereby incorporated as part of the update of the Johnson County Rural Comprehensive Plan.

The following is a description of the CARNP planning process along with all of the recommendations contained in it.

3.1 Purpose and Objectives

The mission of the CARNP planning process was "to achieve a community consensus for maximizing the utility of the County's existing arterial road network to meet anticipated perimeter transportation needs."

CARNP recommends the development of both major and minor systems of routes, including parkways and boulevards that would interconnect the County's and the

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regional roadway network. Integral to the development of the plan was the utilization of previous local transportation studies, consideration of alternative transportation modes (e.g. transit, bicycle, and pedestrian), and the incorporation of growth management concerns (e.g. adequate infrastructure and compatibility with local growth policies and plans).

CARNP includes recommendations for typical roadway design standards and recommendations for protecting the environment as well as recommended strategies for ensuring that adequate rights-of-way will be available for future needed roadway improvements. CARNP recommends that roadway improvements should be coordinated with available financing and land use planning as well as timed so as not to accelerate a low-density suburban pattern or result in leapfrog development.

An underlying goal of the project was to plan for improved arterial roads to serve primarily "through traffic" needs and secondarily to serve adjacent land uses. The focus, therefore, is to improve arterials to primarily connect major activity nodes and to have limited intersections with other roads, limited driveways, but have medians, and similar road features to maximize traffic carrying capacity, rather than providing direct access to adjoining properties.

3.2 CARNP Planning Process

Preparation of CARNP was in response to the Johnson County Board of County Commissioner's decision, at the end of 1995, to conclude further consideration of a controversial proposal for a controlled-access, four-lane beltway highway known as the "21st Century Corridor." Recognizing the need to continue planning for transportation needs and to protect future mobility within the County, the Board

instructed County staff to "seek an alternative strategy for addressing the future transportation needs of Johnson County." Responsibility for the assignment was given to the County Departments of Public Works, Planning, and Financial Management.

The consulting firm of Bucher, Willis & Ratliff Corporation was retained to conduct the study with the assistance of the CARNP Leadership Committee, comprised of business and civic leaders and the CARNP Technical Committee comprised of local transportation officials and community representatives. Public input included a random telephone survey of residents, an *ad hoc* committee known as the Very Interested Group of Residents (VIGOR), numerous public informational meetings, and two public hearings with over 600 people in attendance.

CARNP Recommendations

CARNP establishes a corridor development plan defining major County roadways in terms of function, design standards and right-of-way requirements as described in the Corridor Development Criteria included as Table 1, and illustrated in Figure 1.

Factors considered in developing the recommendation were safety; preservation of neighborhoods, rural areas, and the natural environment; land acquisition and timing, costs, growth management, accommodating alternative modes of transportation, relief of traffic congestion (mobility), existing and future economic development, improving accessibility and "through traffic," and future planning. Five alternative concepts were considered that provided a range of effectiveness relative to the factors considered.

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The recommended plan provides a system comprised of two-lane roadways with paved shoulders, four-lane arterials, and boulevards/parkways. Roadways would be improved subject to the prioritization

through the “triggers” review process (described in a following section) and subject to available funding.

The CARNP map is illustrated on page 4-7.

TABLE 1: CORRIDOR DEVELOPMENT CATEGORIES

| Item | Roadway Type | | | |
|---|---------------------------------|-------------------------------------|------------------------------|------------------------------|
| | Type I – Low | Type II – Medium | Type III – High | Type IV – Major ¹ |
| Functional Classification | Minor Arterial | Major Arterial | Parkway | Highway |
| Example Urban | 143 rd at Mur-Len | Antioch/Blackbob | 135 th /Northgate | K-7 North of K-10 |
| Example Rural | 143 rd West of Clare | 175 th I-35 to US-169 | None | K-7 North of K-10 |
| Lanes – Urban | 3-4 | 4-6 | 4-6 | 4 |
| Lanes – Rural | 2 | 2 | 2-4 | 2-4 |
| Urban Speed Limit | 35 | 45 | 45 | 60 |
| Rural Speed Limit | 45 | 50 | 55 | 65 |
| Traffic volumes Urban ADT | 7,500 - 20,000 | 9,150 - 40,000 | 9,150 - 50,000 | 18,300 - 70,000 |
| Traffic volumes Rural ADT | 2,000 - 7,500 | 2,000 - 10,000 | 7,500 - 30,000 | 18,300 - 50,000 |
| Turn lanes | As required | All intersections | All intersections | N/A |
| Median breaks/street spacing (minimum) | 1,000 ft. | 1/4 mile | 1/2 mile | N/A |
| Intersection Type | Stop/Signal | Signal | Signal/Grade separation | Interchange |
| Median breaks/street spacing (recommended) | 1/4 mile | 1/3 Mile | 1/2 mile | At interchanges |
| Driveway corner clearance from centerline (min.) ² | 600 ft. | 600 ft. | 600 ft. | N/A |
| Frontage - Driveway spacing ³ | 400 ft. | 660 ft. | 1000 ft. | N/A |
| R/W – Rural | 80-120 ft. | 120 ft. | 150-200 ft. | 200-300 ft |
| R/W – Urban ⁴ | 120 ft. | 120 ft. | 150-200 ft. | 200-300 ft. |
| Bike lanes/paths | Planned routes | Planned routes | Planned routes | Planned routes |

¹ No roads of Type IV are included in this plan.

² Corner lots with less frontage than indicated are restricted to access along minor route.

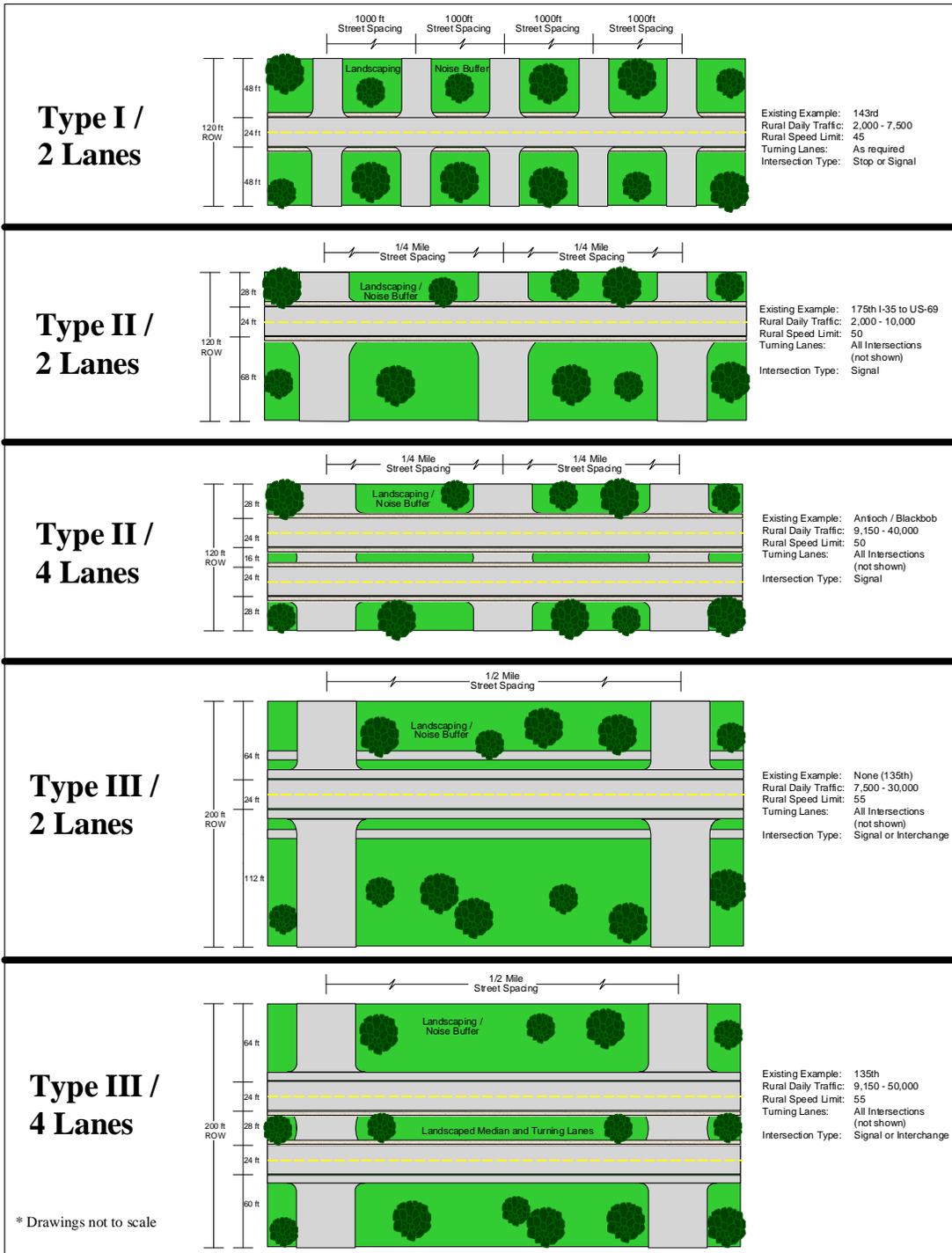
³ Frontage required for each driveway.

⁴ Urban roads are not now in the study area, but are included here to show compatibility with rural requirements.

Source: Johnson County Public Works, BWR Corp, Cities of Lenexa, Overland Park and Olathe

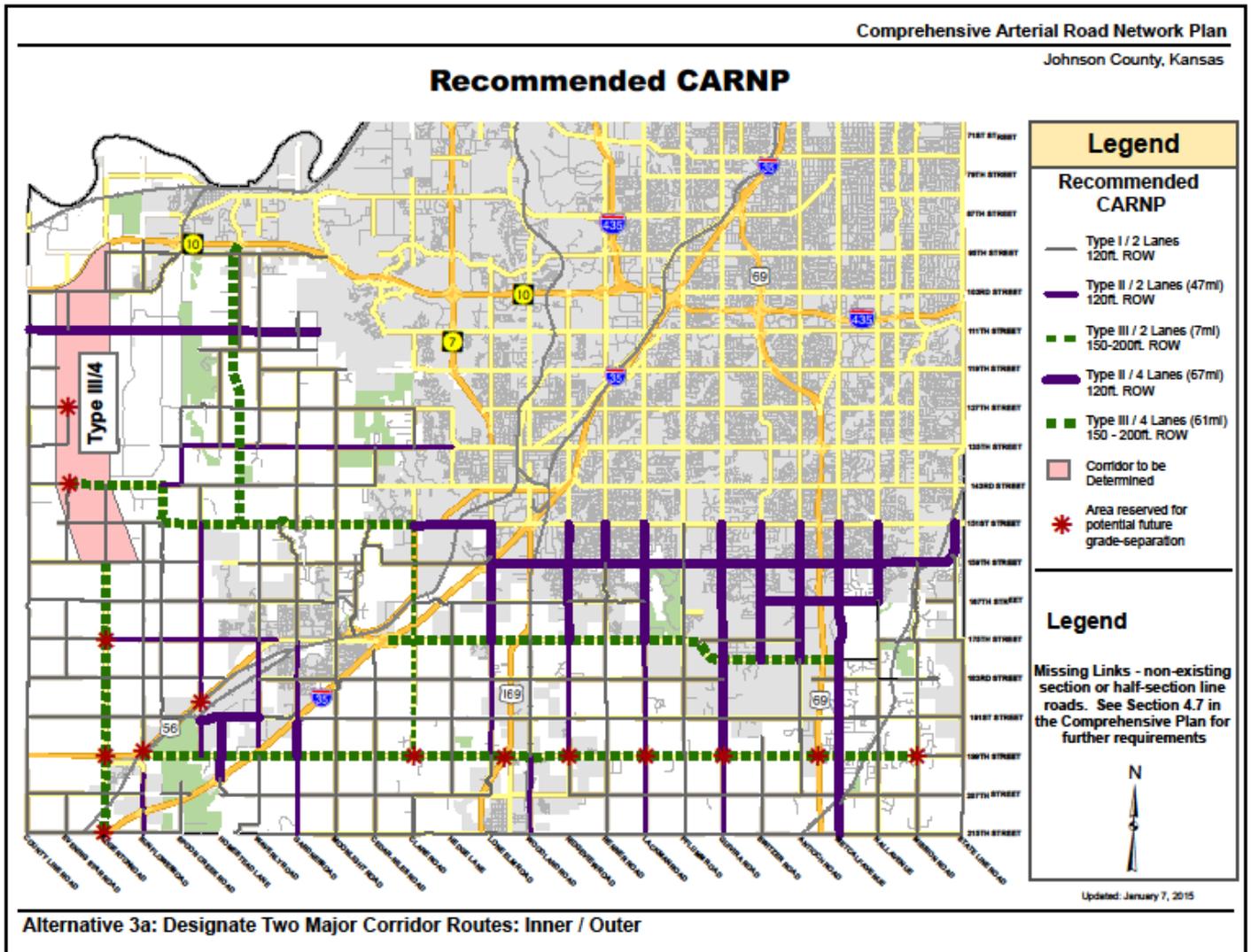
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FIGURE 1: CONCEPTUAL SCHEMATICS OF ROADWAY TYPES



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MAP 3: CARNP



CARNP Supplementary Recommendations

In addition to the map designating future road improvements, CARNP contains the ten "Supplementary Recommendations" that are provided below:

I. Update the County's Master Plan to incorporate the recommendations of the CARNP.

II. Integrate the access control and right-of-way requirements proposed in the CARNP into the County's Master Plan and the County Zoning and Subdivision Regulations.

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III. Utilize growth management techniques as “Guiding Principles” (comprehensive planning, zoning, platting, infrastructure programming, etc.) to manage the type, location, and timing of development. New roadway construction should be planned so that it does not encourage leapfrog development.

CARNP Guiding Principles

The following are guiding principles of CARNP that shall govern the implementation of roadway improvements identified in the CARNP.

1. A strong emphasis will be placed toward public notification and involvement in the development of all roadway improvement plans. This notification and involvement will be particularly focused toward property owners adjacent or in proximity to a proposed improvement project.
 - a. Public notification shall include direct mailing, newsletters, media advertisements, signage, etc.
 - b. Public input shall, at a minimum, include a community briefing at the start of an action such as the construction of a proposed roadway improvement.
 - c. The Planning Commission, township boards, and township zoning boards will serve an integral role in the improvement planning process. These boards shall, at a minimum, have an opportunity to review and comment on roadway improvement plans prior to the County Commission

taking action to proceed with construction of a proposed roadway improvement.

2. Sensitivity to the natural and built environment will be a centerpiece of the CARNP. Each improvement project will be designed such that impacts to adjacent property owners and the natural environment are minimized and/or mitigated. The following practices will be incorporated into all roadway improvement plans:
 - a. Landscaping and vegetation will be relocated or replaced in “as good or better” condition upon completion of roadway improvements.
 - b. Landscaping and vegetation will be used to the extent practical to minimize adverse noise and visual impacts on adjacent residential properties.
 - c. Projects shall be designed to avoid adverse impacts to the natural environment. Where adverse impacts to the natural environment are unavoidable, they shall be mitigated.
- IV. Develop a right-of-way preservation plan and strategic acquisition program including how such a plan is to be financed over the next 20 years. The Board shall strive to complete this plan and implement its recommendations within one year of the adoption of the CARNP.
- V. Research the impacts of an excise tax on new development similar to that used by the Cities of Overland Park, Olathe, and Shawnee to decrease the development pressure in rural areas, and also to place the burden of

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associated roadway improvement costs on new development.

VI. Complete detailed engineering and environmental studies to establish corridor alignments for the following locations:

1. Kill Creek/Corliss Road Corridor from K-10 Highway to 151st Street.
2. 111th/119th Street Corridor from K-7 to the Kill Creek/ Corliss Road Corridor.
3. 119th/135th Corridor from Kill Creek/Corliss Corridor to Evening Star Road.

Note: In 2002, the Board of County Commissioners approved a plan for the Northwest Corridor for items 1-3, above. The Northwest Corridor Plan (see page 4-10), shows the location of this approved new road plan.

4. Type III Corridor identified in the CARNP as Evening Star/ Edgerton Road from K-10 Highway to 159th Street. This alignment study should be addressed in conjunction with the redevelopment planning of the Sunflower Ordinance facility.
5. 175th/199th Corridor from Mission to State Line.

Note: In 2006, the Board of County Commissioners authorized participation in a Mid-America Regional Council led South Metro Connection (SMC) transportation study between Holmes Road in Cass County, Missouri and U.S. Highway 69 in Johnson County. The study included consideration of the above 175th/199th Corridor from Mission to State Line. After

two years of study, the Board of County Commissioners concluded its participation in the SMC and directed that CARNP be revised by:

- a. Removal of the "corridor to be determined" designation, and
- b. Establishment of a CARNP Type I route designation of 179th Street between Metcalf and Nall Avenues.

In 2009, the Board of County Commissioners further directed that CARNP be revised by:

- a. Establishment of a CARNP Type I on 183rd Street as a complete connection between Nall Avenue and Mission Road.
- b. Establishment of a CARNP Type I designation on Nall Avenue as a complete connection between 167th Street and 175th Street, and
- c. The revision of Mission Road's CARNP Type II designation to a CARNP Type I designation.

(Note: No specific date has been set for undertaking item 4 above).

VII. Develop a priority mechanism/schedule for upgrading roadways in which data such as traffic counts/accident statistics trigger the need for improvement. These triggers will serve as indicators to the County that improvements may be warranted along a roadway segment and should be studied. These road studies should include notification and significant involvement by those residents living on or near the roadway segment being considered for improvement.

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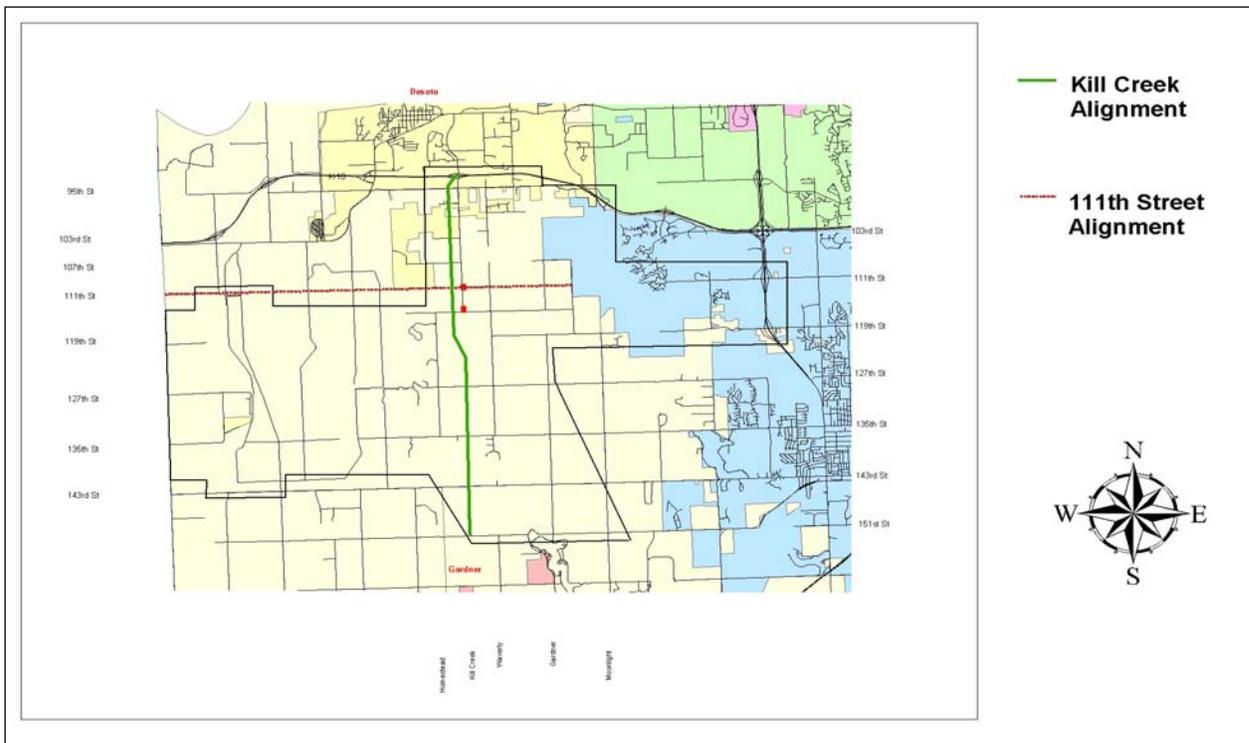
Recognize the desire of citizens to be actively involved and have public input in the development of the timing mechanisms.

- VIII. Incorporate alternative transportation facilities (i.e., transit, bikeway, and pedestrian) into corridor development plans where appropriate.
- IX. CARNP is not to accommodate interstate truck traffic. It is Johnson County's position that it is the primary function of the State and interstate system to provide adequate access through the County for interstate truck

traffic. Due to safety concerns and high maintenance costs, Johnson County will take aggressive action to discourage through truck traffic on local routes. It will start by conducting a study for the unincorporated area to determine the needs for local trucks and establish truck routes to fulfill these needs.

- X. Roadway improvements that require the use of street lighting shall do so by incorporating the best technology available to minimize the adverse impacts of artificial lighting on the surrounding residents.

MAP 4: JOHNSON COUNTY CORRIDORS



3.3 CARNP Triggers Policy

As part of CARNP, the Board of County Commissioners (BOCC) committed to establishing a "triggers" mechanism to prioritize when improvements would be made to CARNP-designated roads. To

address this timing concern, the Board of County Commissioners, on June 27, 2002, approved a Triggers Policy to be used to help prioritize and determine when the road improvements are needed, and to assist in development of a 5-Year Construction Plan. The decision of when

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actual construction projects would begin will be made as separate decisions by the Board of County Commissioners.

An underlying concern throughout the CARNP planning process was that roads are often catalysts for premature development in locations that are inappropriate or lacking other adequate infrastructure (e.g., sewers, water, etc.). Therefore, one of the objectives of CARNP is to ensure that road construction is timed and major road improvements are not made in advance of need. The Triggers Policy, therefore, sets forth criteria for prioritizing when to approve certain CARNP road improvements thereby attempting to avoid the problems associated with premature development such as sprawl or "leapfrog" development.

The Triggers Policy enables private property owners as well as the public sector to be better informed and to plan accordingly. The Triggers criteria are not intended to limit the planning of route improvements or the preservation of rights-of-way (e.g., land dedication, land use planning, acquisition, zoning, etc.) necessary for future road construction. Nor are the criteria intended in any way to restrict the elimination of possible road hazards or any road improvements associated with general maintenance (e.g., adding shoulders or turn lanes, or upgrading gravel roads to asphalt). Any such roadway upgrades or the elimination of identified possible hazards will continue to be addressed through the County's normal road maintenance and improvement process.

The Triggers Policy was initially prepared by Bucher, Willis & Ratliff, consulting engineers with extensive input from County staff and the CARNP Technical Committee. Special focus groups such as VIGOR and the CARNP Leadership

Committee, also participated in development of the policy.

Triggers Program Review

Inquiries or requests to initiate the Triggers program review process may be made by various parties, including the Board of County Commissioners, the County Planning Commission, township boards, township zoning boards, other County departments, or the general public, particularly residents living near the designated CARNP routes.

Every two years, commencing from the adoption of the Triggers Policy June 27, 2002, Public Works will review the status of the designated CARNP Type II and Type III routes (see page 4-5 for Type II and III route definitions). The majority of the designated CARNP routes currently do not meet CARNP standards. Minimum threshold traffic volumes will be required before a Triggers review is conducted of a Type II or Type III corridor for potential improvement to CARNP standards. An existing two-lane CARNP designated road that does not meet CARNP standards shall not be considered for improvement to CARNP design standards unless the traffic volume is at least 1,500 ADT (Average Daily Traffic). An existing two-lane CARNP designated road shall not be considered for improvement to a four-lane road unless the existing traffic volume is at least 7,500 ADT.

Public Works' 5-Year Construction Plan

Roads not under the County's jurisdiction are not reviewed or subject to the County's Triggers Policy. The findings from Public Works' Triggers review and proposed 5-Year Construction Plan are to be provided to the Johnson County Planning Commission to be included as part of the Planning Commission's annual review of the *Rural Comprehensive Plan*. Members of the township boards and

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township zoning boards are to be invited and notified along with the public to attend this meeting. The findings of the Planning Commission are then to be forwarded to the Board of County Commissioners.

Based upon the results of the findings from the Triggers review and the comments received from the Planning Commission, the Board of County Commissioners will then determine whether to hold a public hearing on any proposed changes to the 5-Year Construction Plan. If a decision is made to not hold a public hearing, then the priorities on the existing 5-Year Construction Plan will not change.

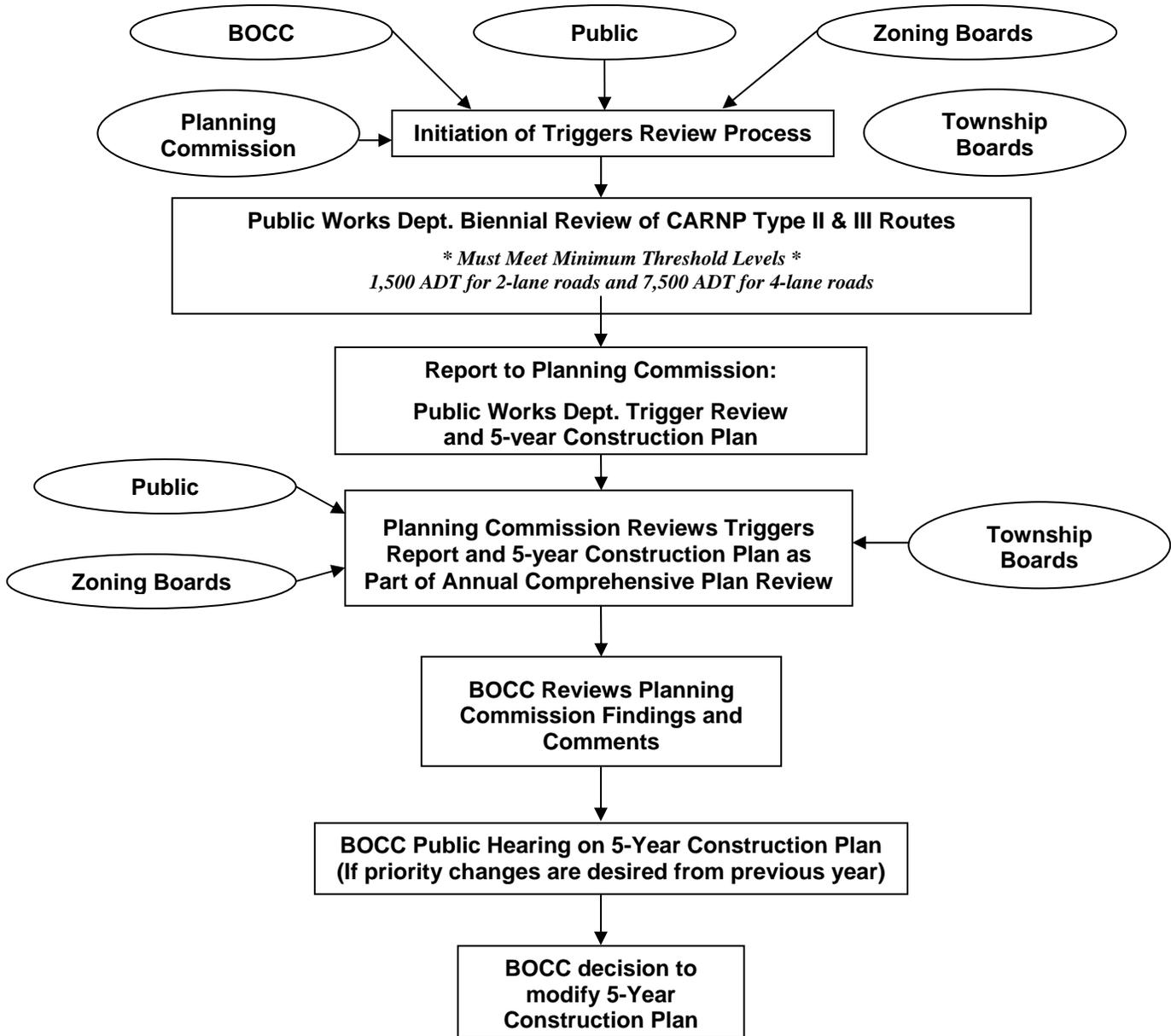
The diagram below illustrates the proposed Triggers Program Review.

On September 18, 2003, the Board of

County Commissioners approved the first 5-Year Construction Plan based on the findings from the Triggers Review Process. The 5-Year Construction Plan calls for the widening and improvement of approximately 10 miles of 199th Street between Metcalf Avenue in the Aubry-Stilwell area and U.S. 169 Highway in Spring Hill.

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TRIGGERS PROGRAM REVIEW CARNP GUIDING PRINCIPLE NO. 7



4.0 COUNTY ROAD AND STREETS

Knowledge of the location and type of County roads provides an important component for consideration in both plans for the future and during review of development proposals. Integral components of the streets and transportation elements include an inventory of existing

roads and their conditions, minimum design and construction standards for new roads, design and layout considerations for new subdivisions, and the trip generation and road capacity standards for planning and development of the street and transportation system.

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4.1 Existing Roads in Unincorporated Johnson County

1. Freeways

- a. U.S. 69 Highway is a four-lane, divided, limited access, north-south freeway approximately 3.75 miles west of the state line.
- b. U.S. 169 Highway is a north-south, four-lane, divided, controlled access freeway with at-grade intersections approximately 11.75 miles west of the State Line. This highway extends through the metropolitan area and connects the cities of Olathe and Spring Hill within the Johnson County planning area.
- c. Kansas Highway 10 is an east-west, four-lane, divided, limited access freeway, approximately 14 to 15 miles north of the south County Line. The eastern end of K-10 Highway connects with Interstate 435 approximately 9 miles west of the state line. Kansas Highway 10 provides a four-lane, divided, limited access highway between the metropolitan area and the City of Lawrence, approximately 8 miles west of the west County Line. Within Johnson County, Kansas Highway 10 provides ready access to the cities of De Soto, Olathe, Lenexa, and Overland Park. Through its connection to Interstate 435, ready access is also provided to the cities of Shawnee, Overland Park and Leawood, in Johnson County, and communities in Jackson County, Missouri, to the east and Wyandotte County, Kansas, to the north and provides access to Kansas City International Airport (KCI), about 26 road-miles from Johnson County. Interstate 435 intersects Interstate 35 about 1-mile east of the K-10, I-435 interchange.
- d. Interstate 35 diagonally crosses the County from the northeast to southwest. It is a limited-access, divided, freeway which has four lanes southwest of the City of Olathe. Northeast of Olathe, Interstate 35 has been improved to a six-lane road with eight lanes at key highway interchanges. It extends into the central business district in Kansas City, Missouri, about 4 miles from the northeast corner of Johnson County, and it intersects with Interstate 70 in downtown Kansas City, Missouri. As mentioned above, Interstate 35 intersects K-10 Highway and Interstate 435 in Johnson County. Interstate 35 also intersects U.S. Highway 169 near the south edge of the City of Olathe at 151st Street. Interstate 35 exits the north County Line about 3 miles west of the State Line, and Interstate 35 intersects Interstate 635, a north-south, inner-loop freeway, at that point.
- e. Kansas Highway 7 is a north-south, four-lane, divided, freeway, with some at-grade intersections and some

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grade-separated interchanges. It is located approximately 13 miles west of the state line, and it joins with U.S. Highway 169 through the City of Olathe. K-7 Highway connects the cities of Shawnee, Lenexa, Olathe, and Spring Hill.

2. Paved Roads - Constructed to Engineering Standards

Generally, the paved roads in unincorporated Johnson County are two-lane, state or federal highways, or former highways, and County roads improved with federal funds and include the following:

- a. Metcalf Avenue (former U.S. Highway 69) is a two-lane, north-south road approximately 3.25 miles west of the State Line.
- b. U.S. 56/Old U.S. 56 Highway is a two-lane, northeast-southwest road that parallels Interstate 35. This roadway connects the cities of Olathe, Gardner, and Edgerton, and it exits the west County Line about 2 miles north of the southwest corner of the County.
- c. Old K-10 Highway follows Lexington Avenue and 103rd Street west of the City of De Soto.
- d. Webster Street from 207th Street to U.S. 169 Highway.
- e. Gardner Road from 167th Street to 151st Street.

f. 151st Street from Old U.S. 56 Highway to Gardner West Road.

g. 175th Street from Pflumm Road to I-35.

h. 175th/179th Street from South U.S. 69 Highway west to Pflumm Road.

i. Lone Elm road, 175th Street to 159th Street.

3. Chip-and-Seal Surfaced Roads

Several roads have dust-free surfaces that largely consist of chip-and-seal surfacing placed on roadways that formerly were gravel roads. In places, some of these roads have been overlaid with asphalt or have been rebuilt with asphalt pavement in conjunction with bridge or intersection reconstruction projects. Since the pattern of chip-and-seal surfaced roadways shows considerable dispersion, the latest County Road Map provides the best data on the location, length and pattern of such roadways. That map shows both paved and chip-and-seal surfaced roads with solid black lines, therefore, the list of paved two-lane roads in subparagraph (2) above needs to be considered when reviewing that map.

4. Gravel Roads

Gravel surfaced roads are shown on the County Road Map with lightweight, double lines. Because of the somewhat random distribution pattern of gravel roads, the variety in their seg-

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ment lengths, and their generally low-capacity for providing access to development in unincorporated Johnson County, the map of existing County roads should be carefully reviewed and considered with respect to each proposed development site in the County to identify any gravel roads which might be expected to experience increased traffic in excess of the capacity of such roads.

5. Existing Traffic Counts.

The Public Works Office has counted traffic volumes in unincorporated Johnson County in 1986, 1988, 1990, 1992, 1994, 1998, and 2001. Latest Traffic Count maps are available at the County Public Works Department.

4.2 Minimum Standards for New Streets

1. On October 27, 1988, the County adopted several resolutions that established revised standards for new streets, bridges and storm drainage system improvements including:
 - a. Resolution No. 150-88 which adopted "Street Construction and Storm Drainage Standards for New Subdivisions, 1988 Edition."
 - b. Resolution No. 151-88 which adopted a new storm sewer design code and readopted specifications for road and bridge construction.
 - c. Resolution No. 152-88 which adopted policies, procedures, standards and guide-

lines for the construction of private roads.

4.3 Penalties Regarding Street Standards

On November 17, 1988, the Board of County Commissioners adopted Resolution No. 159-88 that established penalties for the violation of Resolution Nos. 150-88, 151-88, 152-88 and 153-88.

4.4 Right-of-Way Dedication Policy

The Board of County Commissioners, on February 8, 1996, adopted policies to guide the administration of the right-of-way dedication requirements. In summary, the policies:

1. Do not require dedications of right-of-way from rural or residential tracts or lots with more than 600 feet of frontage.
2. Require arterial street right-of-way dedications of forty (40) feet from section line or from half-section line unless any one of the following conditions apply, in which case right-of-way dedications to sixty (60) feet from section line or from half-section line shall be required:
 - a. In the Urban Fringe Policy Area and where there is a need to match city requirements;
 - b. If the land is adjacent to a Major Arterial or Parkway as designated on the CARNP map;
 - c. If the development is for commercial, industrial, quasi-public, or institutional zoning or land uses; or

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- d. If a subdivision plat is proposed for 2-acre or smaller lot sizes.
3. Establish an Official Street Line at 60 feet from the section line or from the half-section line along Major Arterial Streets and along Minor Arterial Streets. The Official Street Line delineates:
 - a. The typical boundary of street right-of-way that may be needed for street improvements and widening purposes as the County continues to develop.
 - b. The line from which front yard building setbacks are measured.
 - c. The required setback line for purposes of septic system installations and other private improvements that may not be subject to the front yard setback requirements (e.g., fences, gates, landscaping).
4. Enable rebates of some previously dedicated rights-of-way on a case-by-case basis as may be determined by the Board of County Commissioners after a public hearing, staff recommendation and findings. The cost of such rebating shall be paid by the persons requesting reconsideration and rebating of previously dedicated rights-of-way.

4.5 Street Design and Layout Considerations

A convenient, safe street system is important for the health, safety and welfare of the community and the economic well being of the County. The street system

needs to provide appropriate routes for through traffic, especially with respect to major nodes of urban development. Local streets that serve individual building sites need to be interconnected to the network of the major and minor arterial streets which primarily provide for the through traffic needs. As areas of the County develop, a pattern of interconnected streets needs to be developed, therefore, new developments need to be reviewed with due consideration to the need for stub-out streets to adjoining tracts.

An effective street system also needs to respect the constraints provided by natural features such as floodplain areas, steep slopes, existing developed areas or land uses which should not be disrupted by significant through traffic. Similar overall design factors need to be considered as plans for the future street system are developed.

4.6 Future Road Planning Considerations

Trip generation, road capacities, and general cost estimates are important components of planning for the future road and transportation system.

1. Traffic Volume Projection Factors
 - a. Trip Generation Ratios:

Trip generation ratios are available from sources such as the Urban Land Institute (ULI) and the Institute of Traffic Engineers (ITE). Trip generation references from these two sources were considered during the preparation of the Comprehensive Plan.

The trip generation ratios presented below in Table 2 are based upon local

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experience within the unincorporated area combined with adjusted information from ULI and ITE. Table 2, therefore, is presented here for consideration with respect to the review and evaluation of individual land use or development proposals relative to the unincorporated area of Johnson County.

b. Traffic Capacity Levels for Various Street Types:

The Long-Range Road Network Draft prepared by Public Works, includes the following road traffic capacity guidelines shown in Table 3 below on this page.

TABLE 2: TRIP GENERATION RATIOS

| | |
|--|---|
| <u>Residential Uses</u> | 7 vehicle trips/day per dwelling unit |
| <u>Office Uses</u> | |
| Office Buildings (100,000 sq. ft.) | 20 vehicle trips per day/1,000 square ft. |
| <u>Industrial Uses</u> | |
| Industrial Park (200 Acres) | 10 vehicle trips per day /1,000 sq. ft. |
| Manufacturing/Assembly (80 Acres) | 4 vehicle trips per day /1,000 sq. ft. |
| Warehousing (60 Acres) | 5 vehicle trips per day /1,000 sq. ft. |

TABLE 3. STREET CAPACITY GUIDELINES

| <u>Class</u> | <u>Name</u> | <u>Description</u> | <u>ADT*</u> |
|--------------|----------------------|--|-------------|
| 1 | Primitive | Narrower than 17 feet | N/A |
| 2 | One Lane Gravel | Narrower than 17 feet | 40 |
| 3 | Narrow Gravel | 17'-20' wide | 200 |
| 4 | Gravel | Wider than 20 feet | 350 |
| 5 | Narrow Asphalt | Less than 22 feet wide | 1,000 |
| 6 | Asphalt | No shoulders, wider than 22 feet | 2,000 |
| 7 | Asphalt | With shoulders, wider than 24 feet | 4,000 |
| 8 | Rural Major Arterial | Engineered plan and profile, >24' wide | 8,000 |
| 9 | Rural Major Arterial | With turn lanes, >24' wide | 10,000 |
| 10 | Urban Major Arterial | 4-lane, >48' wide | 20,000 |

*Optimum Average Daily Traffic

4.7 CARNP Missing Links

Included in the planning for future road and transportation systems is consideration of areas that are referred to as "missing links." These are locations where there are breaks in the existing

arterial section line road system and there is no CARNP designation.

The CARNP planning process primarily focused on the major arterial and parkway routes (CARNP Type II and Type III), and consideration of connecting these

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missing links was limited, thereby leaving gaps in the Type I network grid system.

Some of these missing links have never been opened because of existing developments or because of geographic constraints such as waterways or topography. In other instances some of these arterial roads were opened years ago but were closed due to a lack of use or because of the high cost of maintenance or repair.

As part of the review of proposed development along section lines where such missing links exist and the CARNP Map 3 does not show a specific road designation, consideration will be given to the potential of a future CARNP Type I road connection. Factors such as connectivity, proposed and existing developments, and geographic or other constraints (e.g., rail lines) will be reviewed when considering the designation of a missing link as a CARNP Type I route. Developments proposals in these locations, therefore, may be required to include the provision of right-of-way for a future CARNP Type I route constructed on or along the section line. In addition, adherence to other County regulations associated with CARNP Type I routes may be required for developments adjacent to these missing links."

5.0 RAILROADS

The railroad routes that cross through the unincorporated portions of the County are the Burlington Northern Santa Fe Railroad and the Missouri Pacific Railroad. This network of rail service is important to the economic welfare of the County as well as being a factor affecting the location and type of future development.

Within the unincorporated area, rail service is limited to freight traffic with only a few locations where such service is

provided. The only major location within the unincorporated served by rail is New Century AirCenter. An old railroad spur of undetermined utility is also still available to the former Sunflower Army Ammunition Plant.

Because of the limited availability of infrastructure to support heavy industry, except for businesses at New Century AirCenter and possibly at the former Sunflower Army Ammunition Plant, there are no other locations within the unincorporated area anticipated to need rail service in the near future.

The primary impact of rail service within the unincorporated area is from the location of the tracks. The locations of these rails can pose a constraint to development as well as limit traffic flow on streets. Most of the tracks within the unincorporated area, however, are located in relatively remote areas along streambeds or in floodplains. It is not anticipated that there will be any major changes in the locations of these tracks within the planning horizon for this Plan.

In recent years there have been informal discussions among community leaders about the need and potential to relocate railroad tracks out of some of the cities within the County; especially within the downtown area of Olathe. These discussions have often pointed to the possibility of installing alternate routes within the western rural portions of the County, but no formal actions or studies have been made or undertaken as of this time.

The following is a summary of the two major railroad lines, and their routes, that pass through Johnson County:

1. The Missouri Pacific Railroad has a main north-south line that enters the east side of the County just south of 143rd Street

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and State Line. It follows the Blue River Valley and Camp Branch Creek in a south-southwest direction and exits the County at Antioch Road and 215th Street.

2. The Burlington Northern and Santa Fe Railroad has main railroad tracks that enter the north side of the County near Metcalf Avenue and Interstate 35. These tracks follow generally a southwesterly alignment parallel and adjacent to the west side of Interstate 35 until it crosses 143rd Street (Dennis Avenue) in the City of Olathe. South of 143rd Street, these railroad tracks generally follow U.S. 169 Highway and Woodland Road straight south through the City of Spring Hill.

The Burlington Northern and Santa Fe Railroad also have main railroad tracks along the south side of the Kansas River near Interstate 435. From that point, one branch of these tracks follows the bluffs along the south side of the Kansas River valley, west through the City of De Soto and into Douglas County near what would be 90th Street.

The other branch of these tracks turns south along the west side of Mill Creek and follows the Mill Creek Valley into the City of Olathe. South of 143rd Street (Dennis Avenue) this railroad line turns to a southwesterly path past the south side of the New Century AirCenter, travels through the City of Gardner and the City of Edgerton. This railroad line exits the County south of the City of Edgerton about 1.5 miles east of the southwest corner of the County.

6.0 AIRPORTS AND AIRCRAFT TRANSPORTATION

6.1 County Airports

Johnson County owns and operates the New Century AirCenter (formerly named the Johnson County Industrial Airport) northwest of 175th Street and Interstate 35 and the Johnson County Executive Airport southeast of 151st Street and Pflumm Road. Both airports serve general aviation uses.

New Century AirCenter is the larger of the two airports, and it could be used for air-passenger and airfreight operations in the future.

New Century AirCenter (NCAC) is located within the unincorporated area, east of the city of Gardner at I-35 and 175th Street. The facility has been owned by Johnson County since it was acquired from the U.S. Navy in 1973. NCAC is the second busiest general aviation airfield in Kansas with approximately 65,000 flight operations a year. The only Kansas airport with more flight operations is Executive Airport (90,000 per year), located within the city limits of Olathe and also owned by Johnson County.

NCAC is home base for nearly 200 aircraft and seven aviation-related businesses employing over 200 people. The airport includes over 1,000 acres of land, 84 lane miles of pavement, 90 hangars, large runway and approach lighting systems, a control tower, and a crash/fire/rescue service. The Federal Aviation Administration (FAA) licenses NCAC for commercial operations.

The Board of County Commissioners approved the current master plan for NCAC in 1993. The master plan recommends the continued expansion of the

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airport operations and continued leasing of land for business park development. An update of the master plan for NCAC is anticipated provided funding is available from the FAA.

As part of the County's 2000 infrastructure plan, *Preserving Our Future* (POF), the need to plan and control land uses surrounding NCAC was identified as essential to avoiding conflicts or limiting future aviation activities. POF recommended that continued joint planning in this location is needed between the County and neighboring cities to update regulations and planning efforts to protect NCAC from encroachment by new development.



POF recommended convening a group of representative pilots, aircraft owners/operators, business and economic development interests, etc. to develop a set of recommendations for the County Airport Commission for use in strategic planning efforts regarding the development of a future master plan for NCAC and future improvements.

Portions of Executive Airport are located within both the cities of Olathe and Overland Park. This airport is primarily for public use by smaller privately owned planes. This airport was originally constructed during World War II as a Naval

Auxiliary field and deeded to the City of Olathe after the war. In 1967 Olathe transferred ownership of the airport to the Johnson County Board of County Commissioners.



Executive Airport has over 60 T-hanger units for small planes and private facilities for airplane servicing and pilot training.

A group appointed by the County, and composed of representatives of the cities of Gardner, Olathe, and Overland Park, plus representatives of the County and the Johnson County Airport Commission, studied land use compatibility characteristics around Executive Airport and New Century AirCenter. The initial report from that study suggested that procedures be explored for joint city-county planning and land use controls, to identify techniques for dealing with airport vicinity land use compatibility considerations.

The Board of County Commissioners has adopted, as a part of the *Rural Comprehensive Plan*, the *Johnson County Executive Airport Comprehensive Compatibility Plan*, and the *New Century AirCenter Comprehensive Compatibility Plan*. The two airport plans strive to develop land use compatibility guidelines associated with the existing airport operations and nearby development.

Airport vicinity overlay districts and zones have also been adopted as a part of the

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Zoning and Subdivision Regulations of Johnson County, Kansas. The regulations are intended to regulate, among other things, the height of structures and objects of natural growth in the vicinity of the airports pursuant to K.S.A. 3-701 et seq.

Furthermore, airport master plans for both Executive Airport and New Century AirCenter have been adopted by the Board of County Commissioners, and approved by the Federal Aviation Administration. The airport master plans set forth the blueprint for proposed development of the airport complexes in the future.

In addition to general planning and zoning authority pursuant to K.S.A. 19-2956 et seq., and county home rule authority, the Kansas Legislature has provided Johnson County with specific zoning authority of public airports and all property located within one mile thereof. K.S.A. 3-307e provides in part that city zoned areas shall keep such city zoning control, except that any changes in existing city zoning must have the approval of the Board of County Commissioners.

6.2 Scheduled Airline Passenger Service

The Kansas City metropolitan area is served by airlines operating at Kansas City International Airport, about 26 road-miles north of the County. Both Interstate 435 and Interstates 35, 635 and 29 provide highway access to that airport.

6.3 Other Airports and Aircraft Landing Fields in the County

Several public, quasi-public or private facilities exist in the County as follows. It should be noted, however, that the County has not formally determined the status of many of these airport or aircraft landing fields under the County's Zoning and Subdivision Regulations.

1. "Gardner Airport," southeast of 175th Street and Waverly Road, is owned by the City of Gardner and serves as a general aviation airport for small, private aircraft.
2. "Cedar Airpark," located on the north side of 111th Street about 1.5 miles west of Kansas Highway 7 and about 1 mile south of Kansas Highway 10, is open to the public.
3. "Hillside," located at about 16900 Kenneth Road adjacent to the state line, is a private turf airstrip.

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