

Transportation

Community mobility includes a multitude of components that collectively create a system that facilitates the movement of goods and people to, and throughout, the community. These components include not only roadways for motorized vehicles, but also sidewalks, bike lanes, multi-purpose pathways and transit facilities. A comprehensive and efficient transportation system provides not only for the ease of circulation within a community, but also enhances the community's environmental, economic, and social environs. People of all ages, abilities, and modes of movement must have the ability to circulate throughout the community from one's home to workplace, shopping, dining, and entertainment activities. To achieve this end, a systematic and multi-faceted strategy must be implemented that addresses the interconnections between land use and mobility demand.

INTRODUCTION

Much of the emphasis of this chapter is on the roadway system as it connects the region and is the predominant form of mobility in Ponca City. While traveling by car is the most common mode of travel, this plan recognizes that building and improving roadways alone will not fully address the transportation needs of the community. Continued economic growth, escalating infrastructure and fuel costs, and impacts on air quality and the environment all warrant a view of transportation as an interconnected system of roadways, paths, trails, and sidewalks, as well as options for public transportation and freight movement.

The transportation system has a strong influence on the type and quality of growth. Therefore, it should be closely coordinated with the community's overall land use goals and policies. Likewise, an integrated and interconnected system of roadways is important to maintain an efficient and safe traffic flow. It is necessary to



The quality of the transportation experience (which includes the efficiency of traffic movement, as well as the attractiveness of the roadway environs) contributes to quality of life. Likewise, retaining and attracting businesses requires adequate roadway, rail, truck, transit, and pedestrian facilities to move people and goods to and from the area in an effective and efficient manner. Today, many residents cite the quality of the community's street system as an asset.

effectively convey traffic within and between areas of the community. Roadways must be continuous and offer some redundancy. This allows multiple alternatives for traveling within the community, while keeping traffic flowing and alleviating congestion on roadways. Options should be encouraged not only in terms of different travel routes, but also in modal choices along the system's corridors. Providing such options and enhancing mobility will also require promotion of development patterns that encourage alternative land uses and shorter trips (i.e., mixed use developments and compatible commercial uses within close proximity to neighborhoods). It will also require multi-modal improvements, such as sidewalks and bike lanes, to existing and proposed corridors.

PURPOSE

The purpose of this chapter is to identify and address key transportation issues in the community and make recommendations to help improve mobility in the area and accommodate anticipated growth. Additionally, included in this chapter is a Thoroughfare Plan map that can be used by City staff, the Planning Commission, and City Commission to address necessary thoroughfare connections and extensions as new development occurs.

This transportation chapter is divided into five sections:

- ◆ Discussion of trends affecting mobility in Ponca City.
- ◆ Recommended goals, objectives, and actions for maintaining and improving Ponca City's transportation network.
- ◆ Existing Level of Service (LOS) analysis.
- ◆ Existing and future Thoroughfare Plan discussion.
- ◆ List of future thoroughfare improvements.

ISSUES AND OPPORTUNITIES

Ensuring a Well-Connected and High-Quality Street Network

The community has a good street network with arterial roads spaced each mile. This provides good north-south and east-west mobility within the community, as well as regional and statewide connections via U.S. 77 and U.S. 60. Within the superblocks (the areas bounded by arterials on each side), it is important for there to be continuous collector roadways tying together adjacent neighborhoods and the arterial street system. In the original town area where the local streets are laid out on a grid, there is good interconnectivity. In the more recently developed areas, and particularly where there are creeks and drainage ways, there are fewer connections.

Improve the efficiency of the street system through more connections and better continuity.

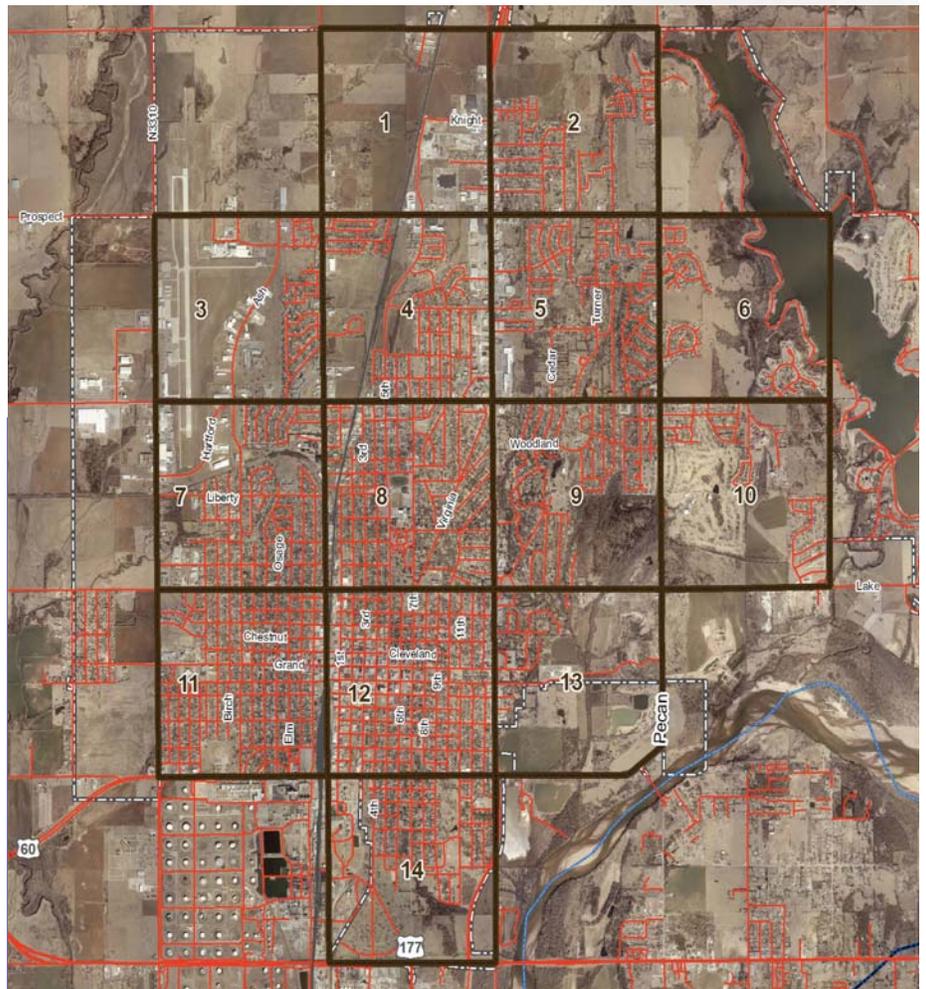
1. Concurrent with new development, require conformance with the adopted Thoroughfare Plan, particularly including the dedication of right-of-way for collector roadways. Furthermore, adopt a policy requiring collector streets to traverse streams, drainageways, and other natural features to ensure continuity of the street system.
2. Annually evaluate the recommended transportation improvement projects (see Table 4.5) for their warrant and priority to include in the five-year Capital Improvement Program (CIP).
3. Consider as potential capital improvement projects the extension of collector streets in developing areas. Bradley Avenue between Turner and 14th Street, for example, is a project that will alleviate traffic on other local streets and greatly improve the mobility in the adjacent neighborhoods. Projects of this nature, however, must be sensitive in their design to limit to the maximum practicable

extent the impacts on immediately abutting properties.

4. Identify opportunities where a collector street extension may improve traffic access while also creating new areas for infill development. The extension of Bradley Avenue west across the railroad tracks to Union Street, for instance, would improve east-west access while also providing for new development.
5. Adopt a policy restricting subdivisions from terminating an existing or planned collector street. Alternatively, a subdivision may propose a realignment of a collector road as long as its function is preserved.
6. Consider adoption of a connectivity index. This ordinance provision conditions curvilinear, discontinuous streets, dead-ends, and cul-de-sacs on the basis of their continuity and external points of access. In general, a point is required as a condition of subdivision approval.
7. Include a provision in the subdivision regulations authorizing the City to develop local circulation plans in lieu of a "tentative plan of a proposed future street system" submitted on behalf of a subdivider. This provision would allow the City to determine a street layout plan for areas beyond the limits of a subdivider's ownership and those areas that are constrained or where there are unique circumstances warranting special study.
8. Incorporate provisions requiring a traffic impact study for conditions that exceed

a certain traffic generation threshold or specified development conditions. Require submission of a study prior to the official acceptance of an application for subdivision or property development.

9. Establish a policy whereby decisions as to the placement and design of traffic control devices is based on the study of trip volume, travel speeds, and signal warrant, as well as transportation planning criteria and traffic engineering standards.



Discontinuous streets interrupt the efficient flow of traffic and create congestion elsewhere. For this reason, as the community continues to develop, it is important for the collector street system to be extended and expanded.

Table 4.1, Connectivity Analysis, shows a brief analysis of the roadway continuity throughout the community, which is divided into 14 sub-regions.

Table 4.1: Connectivity Analysis

Connectivity Analysis		
REGION	ROADS	SIDEWALKS
1	Little development so few roads necessary. Some roadways are dead ends for manufactured housing developments. As development continues, the extension of 5th Street would provide relief as an alternative to 14th Street.	Low-density, scattered development. Reduced need for sidewalks.
2	Several roads discontinuous. Several lead to manufactured housing cul-de-sacs while some may be expanded for future development. Currently, there is a low amount of consistent linkages.	Sidewalk located along 14th St. as well as east development, but inconsistent sidewalk development in a dense residential neighborhood. No pedestrian access to Crown Park.
3	Fairly well-connected roads with a few cul-de-sacs for residential development. Adjacent to the airport, which is an obstacle to connectivity.	Sidewalks maintain adequate linkages in residential area.
4	Well-designed, continuous roads with grid-patterned streets in the southeast corner. There are a couple cul-de-sacs, which should have extensions to other roadways. The railroad tracks create a north-south mobility barrier.	In need of sidewalks on the south half of the region for the residential neighborhood. Crammers, Brentwood, and Young Park all need additional pedestrian access.
5	Largely residential region that is split by existing floodplain and riparian corridor. The Bradley Ave will ameliorate the connectivity situation and provide relief to adjacent minor arterials as well 14th Street.	Generally good connections of sidewalks in more densely residential areas.
6	Recently created roads leave several future right-of-way opportunities for future development. One exception in the northwest corner that is a one-way in/on-way out subdivision.	In need of additional development for the residential neighborhood to the south.
7	Well-connected residential region, but with a major obstacle bisecting the neighborhood: the AT & SF right of way. As a result, the roadways are limited and the network is unfinished. (i.e. Birch, Peachtree, and Sunset streets north of Liberty).	Scattered and uneven sidewalk patterns. Several blocks require sidewalks although it seems that some areas had sidewalk removed. Little to no access to Sunset Park. This abandoned ROW could be a trail opportunity that would connect two neighborhoods in addition to provide a linear east-west linkage.
8	Dense residential region surrounding the high school with good roadway continuity. Better example of roadway connectivity in city despite the presence of the railway as a north-south barrier.	Very little sidewalk presence except immediately around the school. There is a strong need for added sidewalks to provide increased access to the school as well as McGraw Park.
9	Generally good use of roadways except for long dead-ends and windy roads lacking connections.	Good use of sidewalk in high-density residential areas. No significant pedestrian access to Pioneer Woman Statue & Museum or Edgewood Park.
10	Little development exists, but the foundation of a solid road network is present. The country club creates an obstacle to east-west travel, but a collector system can still exist. Recommended throughfares are listed on the Plan.	Not much development, but has adequate start to sidewalk system.
11	Dense residential region with a grid-patterned roadway system promoting great continuity. Birch, Peachtree, and Sunset Streets abruptly end south of Ponca St.	Adequate sidewalk to the east, but with a lack of sidewalk to the west. The region contains several scattered right-of-ways with sidewalk and several areas which used to have sidewalks. Need for increased pedestrian access to Dan Moran Park. Scattered sidewalk infrastructure inhibits mobility.
12	Commercial and residential region with grid-patterned, continuous roadways. Best example of connected and continuous roadway pattern in city. Able to divert traffic from major corridors to other alternatives.	Densely populated and commercial center. While there are some excellent walking conditions along Grand Ave, there are still several blocks in need of sidewalk development. Recent improvements to 6th Street are an example for the rest of the near-downtown neighborhoods.
13	Few, disconnected roadways, but with possible potential for future development. Obstacles to connectivity include floodplains and riparian corridors. However, low-density development could create a tangled web of dead-ends. This area is at-risk for future connectivity issues.	Low-density region with few sidewalks despite proximity to parks and mix of uses.
14	Majority of the residential neighborhood is well-connected, but the abandoned roads to the south wreak havoc on the overall system. The end of 5th Street creates a major obstacle to north-south travel, both locally and as a road traversing the city.	Adequate sidewalk in residential areas. Need for increased pedestrian access for Attucks, Willow Springs, and Standing Bear Park. The off-street trails opportunities at Standing Bear Park would be complemented by a better sidewalk system.

10. Coordinate with the officials of the BNSF Railroad to evaluate the feasibility and warrant for grade separations at the intersections of the railroad with Hubbard Road, Prospect Avenue, and Hartford Avenue (similar to Highland Avenue). Furthermore, evaluate the requirements for any additional crossing safety improvements.

11. As traffic volumes warrant, plan to widen and improve the bridge crossings on Hubbard Road and LA Cann Drive.

Providing for Quality Conditions and Regular Maintenance of the Street Infrastructure

As evidenced by the passage of the half-cent sales tax referenda, the quality condition and good maintenance of the street system is a priority. Through the public input process, residents credited the City for the quality conditions of the City's streets. With few exceptions, the streets throughout the community are in good condition. The City has and continues to be proactive in the use of its pavement management system to program priority street improvement projects on an annual basis. Continuation of this practice is essential, particularly in light of the aging street infrastructure in the older, well-established neighborhoods.

Streets in the well-established parts of town will continue to deteriorate over time, requiring routine repair and, eventually, reinvestment. Deterioration is inherent to the life cycle aging of streets and is indicative of the need for continued maintenance. In some locations, sidewalks, handicap accessible ramps, and crosswalks were not originally installed so there is a need for reconstruction and retrofitting of these infrastructure improvements.

Part of the City's charm and character is due to its brick streets. These neighborhoods take on a unique appearance and are highly treasured by area residents. The City has been progressive in their approach for maintaining the integrity of the brick streets. Over the 20-year horizon of

this plan, it will be important to have a policy as to the means of improving, rehabilitating, or replacing the streets, consistent with the values and desires of the community.

Improve existing roadway conditions through local infrastructure maintenance and rehabilitation.

1. Continue to maintain and regularly update the pavement management system as a means for prioritizing and programming annual improvement projects.
2. In addition to the street surface maintenance program, establish a priority listing of street drainage improvement projects for those areas that encounter excessive ponding or flooding onto private property. As feasible



The three proposed bridge improvement projects can serve to not only address safety and traffic concerns, but can enhance the nearby recreation areas. Adding a pedestrian accessible lane will permit the completion of the Trails Master Plan as is illustrated in this enhanced Arkansas River crossing in Tulsa. Since these bridges are popular fishing spots, special nodes or plazas can be added that will allow fisherman to safely cast near the bridge. Nearby picnic and recreation areas can be tied into the bridge through trail connections. Lastly, the bridge design itself can be a showpiece for the community and reflect the surrounding natural beauty.

Ensure efficient traffic flow and safe pedestrian environments.

1. Amend the subdivision regulations to include access management standards that specify the number, location, and spacing of driveways; street intersections, medians, and median openings; and marginal access roads, turn lanes, and acceleration/deceleration lanes at major intersections. This is particularly important on each of the arterial streets (e.g. Prospect Avenue, Hartford Avenue, Highland Avenue, Waverly Street, Union Street, 14th Street, and Pecan Street).
2. Require shared driveways and cross access easements between adjacent properties

The purpose of these traffic calming improvements is to reduce speeds on local streets, minimize and reroute cut-through traffic, traffic calming, and preserve neighborhood integrity. A good example is along El Camino Street north of Prospect Avenue. Generally, traffic calming improvements could include a curb extension (bulb-out) at Huntington Place or horizontal traffic calming methods could be situated along the street (chokers), as illustrated above.



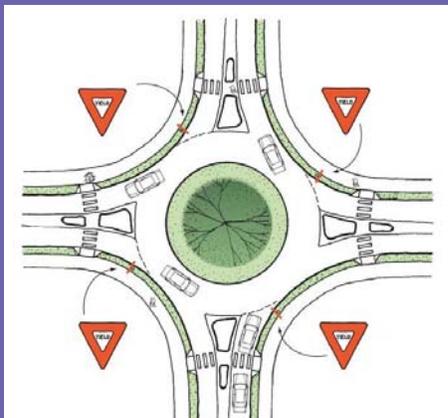
Traffic Calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes in the interest of street safety, livability, and other public purposes.



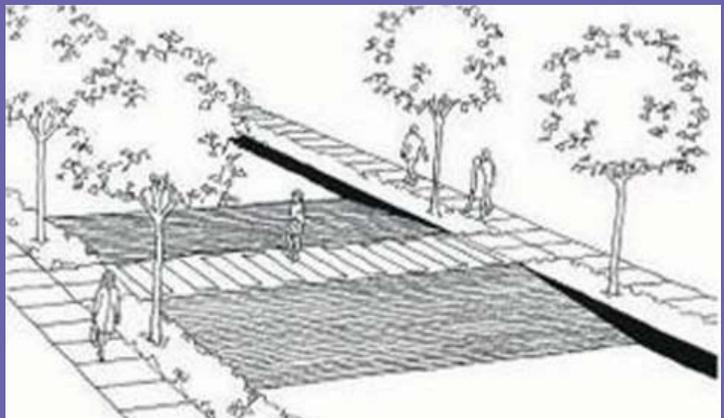
Narrowed Street Near Midblock Crossing



Narrow Lanes and Colored Stamped Pavement



Roundabout at Four-Way Intersection



Raised Crosswalk

with commercial frontage to minimize the number of access points to arterial streets.



Collaborate with the BNSF on linear aesthetics and sound barriers in addition to the intersection safety improvements. Aesthetics improvements may focus on routine maintenance along the railway with emphasis on key downtown areas that are unsightly. Soundproofing may take the form of walls or sound barriers that are textured or covered with a mural.



The Federal Railroad Administration (FRA) published the “Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings”. Recently enacted, the Final Rule requires that locomotive horns sound at all at-grade crossings 15-20 seconds before entering a crossing. The pattern for blowing the horn remains two long, one short, and one long sounding to be repeated as necessary. The FRA Rule preempts any state or local laws regarding the use of the train horn at public crossings.

However, quiet zones may be established if there are supplemental safety measures:

- ◆ Four-Quadrant Gates
- ◆ Medians
- ◆ One-Way Streets with Gates
- ◆ Permanent Closure

3. Conduct traffic access studies along each of the arterial streets to identify opportunities for preserving their traffic carrying capacities. Improvements may include, but are not limited to, driveway consolidation, marginal access streets, on-site turnarounds, acceleration/deceleration lanes, and/or medians.
4. Prepare and adopt a neighborhood traffic calming manual. The manual should outline a series of traffic calming improvement measures, along with warrant criteria and design standards for their installation.
5. Periodically conduct signal warrant studies as area travel volumes increase with new development. In areas that are already managed by traffic signals, signal timing should be reviewed, particularly in congested areas, to determine if timed traffic signals are appropriate relative to the volume and peaks in traffic flow. Pedestrian and bicycle actuated traffic signals should be installed at intersections near and around schools, parks, and other areas with high pedestrian traffic.
6. Take appropriate steps to enhance safety in school vicinities given traffic and vehicle queuing related to parent pick-up and drop-off. These steps include painting or raised crosswalks, warning lights, sidewalk extensions or repair, and striped bicycle lanes, among other improvements.
7. Target traffic enforcement efforts in neighborhood areas that routinely experience cut-through traffic. This enforcement strategy is a short-term measure until traffic calming or other improvements may be made.
8. Identify capital improvement projects aimed at improving emergency response. The connection of Bradley Avenue, for instance, will not only improve neighborhood access, but will also aid in the directness of routes and a shortened response time. Improvements of this nature may help to improve the fire insurance rating and optimize fire station locations.

9. Amend the subdivision regulations to require, in all instances, temporary turnarounds (rather than barricades) at street termini and increase the minimum radii of cul-de-sacs to 60 feet (currently 50 feet) including provisions for the placement and size of islands within cul-de-sacs.
10. Study the Downtown streetscape design concepts (see Chapter 2, Land Use and Character) and coordinate with ODOT to consider the installation of a median on Grand Avenue as a means for improving pedestrian safety, as well as the aesthetics of the street environment.
11. Coordinate with the officials of BNSF Railroad to further improve safety conditions at all railroad crossings. This may include additional four-arm gates and signage or, potentially, the use of LED lighting embedded in the street. The City may also consider the designation of “quiet zones” whereby passing trains are prohibited from sounding their horns in order to decrease the noise level for nearby residential communities. The train horns can be silenced only when other safety measures compensate for the absence of the horns.

Accommodating Greater Walking and Biking Opportunities

Bicycle and pedestrian facilities add to the quality of life of Ponca City. Not only do these facilities offer important mobility options within the community, but they also help to meet the recreational needs of citizens. Through the public involvement process, residents articulated their desires to become a more walkable community. The City has taken a good first step with the adoption of the Trails Master Plan, which has resulted in the construction of some trail segments, as well as the designation of bike routes and lanes. Incremental implementation of this plan will eventually form a thorough network of non-motorized connections. These improvements must remain a funding priority for the City to achieve this objective.

Collaboration with railroad companies should be a high priority due to the extensive railroad corridors that cross the City. Ponca City's geography as a railroad crossroad necessitates close planning with railroad companies in all aspects: roadway widening, grade separation, intersection safety improvements, and abandoned railways. The abandoned right-of-way along the BNSF offers an opportunity to connect parks, schools, and neighborhoods through the use of a linear pathway, as illustrated below.

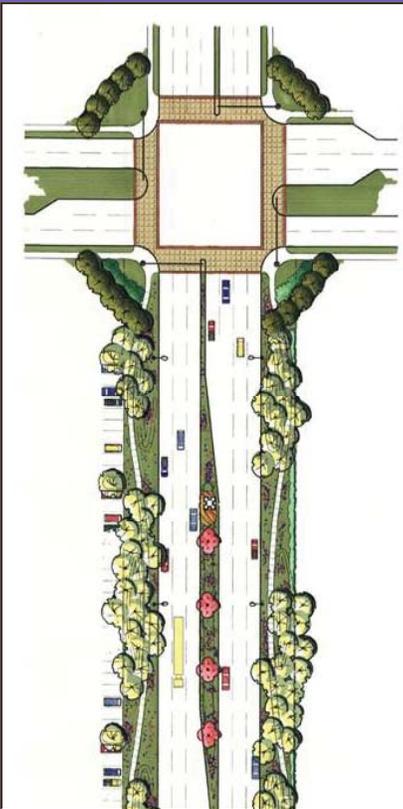


An optimal solution for multi-modal corridors is the presence of different options for pedestrians and bicyclists. In the example above, a pathway designed for bicyclists and joggers run parallel to a sidewalk intended for slower moving walkers. Although it requires additional right-of-way width, it makes for a better trail system and reduces the risk of conflicts between users.

A trail network will require public education similar to the “rules of the road” for drivers. This may be achieved through informal programs or through signage along the trail.

The other vital component of the pedestrian system is the network of sidewalks. While the City requires sidewalks on both sides of all streets (with the exception of those with one-acre lots or larger), there are neighborhoods that predated this requirement, as well as those where their conditions have deteriorated or there are missing sections. A complete sidewalk network is essential to provide adequate and safe connections within neighborhoods and to nearby trails, bike lanes, parks, and schools.

Fund necessary infrastructure and facilities to promote alternative transportation modes.



Streetscape enhancement may include landscaping at intersections, decorative pavement and crosswalks, landscaped medians, meandering trails within liberal green space, and an overall greening of the roadway environs.

1. Conduct a detailed inventory to update the current mapping of sidewalks, particularly along the local streets and within a one-quarter mile radius of all parks, schools, and public buildings. The inventory should include a condition index allowing development of a prioritized improvement program.
2. Establish a minimum annual budget allocation for the repair, replacement, and/or installation of sidewalks in priority locations.
3. Adopt a policy regarding the use of assessment districts for the financial participation of abutting property owners, particularly when a project is requested by a majority of neighborhood property owners. The policy must also establish the criteria when sidewalks are required by the City and may not be waived or exempted.
4. Conduct a pedestrian street crossing study along each of the arterial streets to identify necessary pedestrian street improvements. These may include bicycle/pedestrian actuated street signals, improved crosswalks, pedestrian refuges (i.e. medians) in appropriate locations, improved signage, etc. In particular, identify appropriate locations for cyclists and pedestrians to safely cross the 14th Street/U.S. 77 corridor.
5. Adopt a policy whereby sidewalk installation or repair/rehabilitation is a requirement of all qualifying street improvement projects.
6. Install bicycle racks at key locations and buildings throughout the community. Retrofitting community destinations will complement efforts to improve the trails system.
7. Add requirements for bike parking to the zoning ordinance. Such requirements may be tied to the number of parking spaces or the overall building size.
8. Use abandoned railroad right-of-way for trail development, such as the planned trail along the BNSF Railroad.

9. Adopt a policy and amend the City Charter (as applicable) to establish the responsibility for sidewalk maintenance and repair along local streets. This may also include construction standards and specifications to ensure quality, sustainable improvements.
10. Complete a study of park access as part of the Parks Master Plan to identify barriers to park access. The barrier analysis may include collector and arterial streets, rail crossings, missing segments or poor conditions of sidewalks, and areas necessitating improved street crossings. Subsequently, prepare a multi-year improvement program.
11. Continue the existing policy to improve handicap accessibility concurrent with street, intersection, and sidewalk improvements.
12. Continue to expand the network of on-street, signed, and striped bike lanes. Many of the City's streets are already sufficient in width to accommodate bike lanes without the need for additional right-of-way or street widening. As streets are surfaced, include striping and signage for a designated bike lane, as displayed in **Map 4.1, Bikeways and Trail Connections**.
13. Coordinate with Kay County to place signs on the surrounding rural, paved roads indicating the designation as a bicycle route. These are for the purpose of avid recreational and distance cyclists.

Enhance pedestrian friendliness in Downtown and in all commercial developments.

1. Prioritize intersections in the community that are heavily used by pedestrians and implement safety improvements at these intersections. Intersections should be prioritized based on use and pedestrian risk. Improvements could include installing accessible ramps for persons with disabilities; marked, signed, and/or signaled pedestrian crossings; and pedestrian-actuated signal detectors.



The City's investment in the multi-million dollar Ponca City Aquatic and Family Center should be coupled with transportation connections to nearby neighborhoods. Currently, the sidewalk network is incomplete near the site. In order to allow the new facility to be the most accessible, there should be extensive sidewalk connections to new development as well as investment in existing neighborhoods that lack adequate sidewalks.

2. Conduct a pedestrian/bicycle access study with a focus on schools, parks, and public buildings. The study should evaluate the means of safe access to each site beginning within a radius of one-quarter mile of each site and radiating outwards. The study should result in specific improvement recommendations for each facility, along with potential funding sources. A good example is the improvements necessary to provide safe non-vehicular access to Ponca City Aquatic and Family Center.
3. Amend the zoning ordinance to include:
 - a. Pedestrian and bicycle site design criteria for large commercial sites. These criteria should include both on- and off-site pedestrian connections, internal pedestrian access and circulation requirements, provisions for bike parking,

- and pedestrian/vehicular conflict safety improvements;
 - b. Building design standards pertaining to the use of canopies/awnings to shelter pedestrians; and
 - c. Building scale standards that lead to more conducive pedestrian environments including public spaces and gathering areas.
4. Design and fund streetscape improvements in Downtown to make the street environment more inviting. This may include the addition of street furniture, art displays, outdoor performance areas, kiosks, way-finding signage, historic markers, and outdoor seating/vendor areas.
 5. Provide grants and design assistance to add awnings and canopies to the building fronts to provide shade and shelter during inclement weather. These should be designed to enhance the historic architecture.



Looking ahead, more work with the County will be needed to improve roadways at the periphery of the City. The planned improvements on Waverly Street and Hubbard Avenue are reflective of a mutually beneficial road improvement. Combined with the investment in the Ponca City Aquatic and Family Center, the Waverly Street improvements will create an attractive gateway into the heart of the city.

6. Highlight the availability of Downtown parking for visitors and residents. Information about parking options is a method for making Downtown more inviting. This educational effort may include signage on streets, buildings, or parking lots.

Promote land use patterns that result in a more walkable community.

1. Create ordinance provisions to allow the design of more walkable neighborhoods. Availability of nearby services and frequent destinations (school, church, restaurants, grocery store, convenience store, dry cleaners, parks, etc.) allow residents to make shorter trips on foot or by bike rather than driving for each trip. Amend the zoning ordinance as follows:
 - a. Restructure the planned unit development provisions to allow planned development as a permitted by-right option within the based zoning districts. For instance, a planned development would be permitted within a single family district subject to specified density controls and design standards to preserve neighborhood character. This performance-based approach would allow a range of housing types and living environments, as well as an appropriate mixture of uses. It would also provide increased assurance of approval as well as the development outcomes.
 - b. Continue to allow a mix of uses in the C-1 District so that neighborhood-scale destinations can be located in close proximity to one another. Incorporate design standards that promote walking and biking so that the project is fully accessible to the local neighborhood residents.
 - c. Incorporate density bonuses that are eligible within 400 feet of arterial roads. In this way, residential development may be economically feasible along



arterial roads. This would improve the appearance of corridors, provide an alternative to strip commercial uses, and allow higher density residential development in close proximity to retail areas.

- d. Allow a certain percentage of commercial use within the residential districts subject to strict design standards. These standards would include a residential appearance (similar scale, pitched roofs, comparable building materials and colors), building scale limitations, restrictions on lighting, and bufferyard requirements.

Expanding the Road Network Concurrent with City Expansion

In order to seize economic opportunities and preserve the community's special quality of life, there must be a long-range plan for growth of the transportation system concurrent with new development. As such, a primary role of this transportation element is to preserve sufficient rights-of-way on sufficient alignments to facilitate expansion of the street system. Furthermore, this section seeks to coordinate regional and statewide transportation projects that will benefit the community.

Coupled with the aim of improved mobility is the influence of the local transportation system on the character and appearance of the community. For example, 14th Street transitions from a suburban residential character between Highland Avenue/Lake Road and Hartford Avenue to an auto-urban commercial character north of Hartford Avenue. Therefore, this plan seeks to accentuate the adjacent land character through the design of context sensitive streets.

Implement policies to preserve the efficient function of the thoroughfare system.

1. Adopt the following policies and utilize them in the review and approval of subdivision development:

Arterial Streets

- a. Access to higher intensity land uses should be limited by way of cross and joint access agreements and marginal access roads.
- b. Spacing of access points from intersections should be based on prevailing speeds of free flowing traffic and/or beyond the influence of standing queues. Access points should be a minimum distance of 150 feet from street intersections.
- c. A raised median should be included in the design cross section of arterial streets where the abutting property is not yet developed. For largely developed areas, an access study should be prepared to determine the feasibility of raised medians.
- d. Access points should be aligned with median breaks and access points across the street.
- e. There should be limited intersections with local streets, generally spaced no less than 600 feet apart. Rather, local streets should access a collector roadway to minimize the impedance of traffic and maximize the traffic carrying capacity of the arterial street.
- f. Residential driveway access shall not be allowed onto an arterial street.
- g. Collector roadways should maintain a spacing of approximately one-quarter to one-half mile, which may be signalized with an arterial street.
- h. Acceleration and deceleration lanes should be provided at all intersections to facilitate safe turning movements, as warranted by a traffic impact study.
- i. Parking should not be permitted on arterial streets (with the exception of Grand Avenue in Downtown).

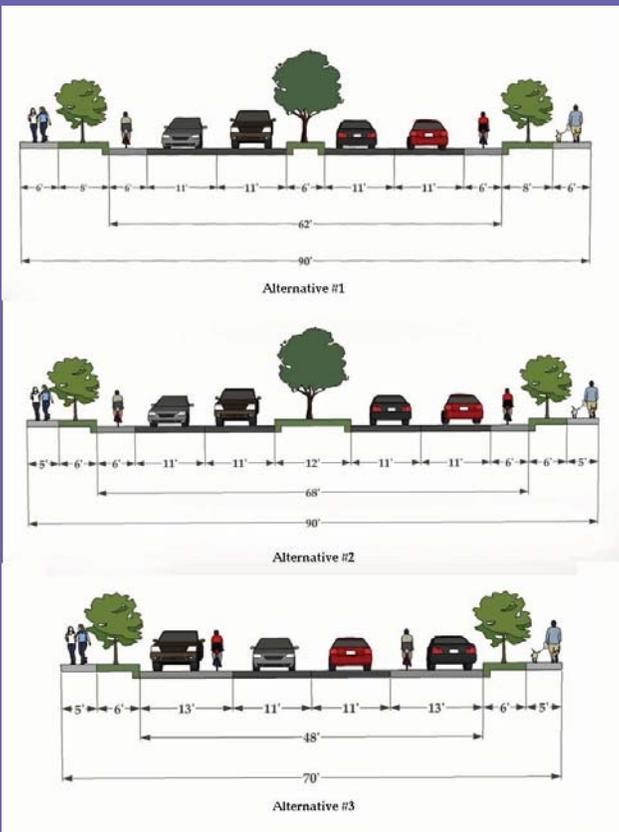
- j. A signal warrant study should be conducted to justify the location of signalized intersections.
- k. Pedestrian crossing improvements should be limited to signalized intersection locations. Such improvements should include crosswalk delineation via reflective paint or pavement texturing, American's with Disabilities Act (ADA) improvements, pedestrian and

bicycle actuated signals, pavement markings, and signage.

- l. Arterial streets with adequate R.O.W. listed in the Trails Master Plan should be complemented by an eight-foot wide trail section along one side. This may be difficult in built-out segments, but is a possibility along yet-to-be-developed corridors, such as Pecan Road and Lake Road.

Major and Minor Collector Streets

- a. Major collector streets should be spaced at approximately one-half mile intervals.
- b. Minor collector streets may be used for spacing between arterial and major collector streets where there are no more than 10,000 vehicles per day.
- c. Collector streets should cross streams, drainageways, and other barriers to provide for street continuity.
- d. Collector streets should not be designated as truck routes, unless special precautions are taken with respect to design (curb return radii, minimum tangent lengths between reverse curves, construction specifications, etc.) and the abutting land use.
- e. Driveways should not access major collector streets and should be allowed for properties abutting no more than 25 percent of the lot frontage abutting minor collector streets.
- f. Collectors should extend continuously between arterial streets.
- g. Traffic calming techniques may be used to slow traffic along continuous sections of collector streets.



Implementing the Trails Plan will require the use of more alternative street cross sections than currently developed. These three alternative cross sections incorporate sidewalks and bike lanes to promote multi-modal access. Any proposed corridor improvement that is also listed as a trails linkage should be designed with bike and pedestrian access as a priority.



Local Streets

- a. Traffic calming techniques may be used to slow traffic, particularly adjacent to schools, parks, and public buildings.
- b. Traffic control devices should be installed according to the Uniform Traffic Control Manual.
- c. Amend the subdivision regulations to specify the required right-of-way and pavement widths of each street classification, including conditions when additional right-of-way or street pavement width is required or may be narrowed. The cross sections should be context-sensitive, meaning that they should be compatible with the character of the adjacent land use.
- d. Consider incorporating provisions into the zoning regulations authorizing a traffic impact analysis (TIA) if projected traffic from a development site exceeds a traffic generation threshold or other specified development conditions (e.g., square feet of nonresidential development, number of residential units, or other site-specific factors that could trigger the need for mitigation measures along adjacent public streets or at nearby intersections). Such situations could require submission of a study prior to the official acceptance of an application for subdivision, property development, or a change in zoning. The TIA should include mitigation measures to help maintain the desired traffic conditions along the roadway.

Develop and implement street design standards that are context sensitive.

1. Consider amending the subdivision regulations to include performance standards for local streets where the type of access, number of dwelling units served, and the units' average frontages determine the right-of-way, pavement width, parking lanes, curb width, parkways, and sidewalks.

Therefore, the right-of-way and street design are directly tied to development density and traffic volumes.

Enhance the appearance and design of area roadways and City streets.

1. Make application to the beautification office of the Oklahoma Department of Transportation (ODOT) to seek funding through the Highway Tree Grant Program, Roadside Wildflower Program, and/or Highway Art Program for enhancements along U.S. 60 between Interstate 35 and Ponca City, as well as along U.S. 77/177 to the north and south of the community.
2. Explore the potential of constructing a gateway improvement to Ponca City at the I-35/U.S. 60 interchange for the purpose of promoting the community and drawing visitors off the interstate highway.
3. Coordinate with ODOT to identify groups and organizations to adopt each segment of U.S. 60 and U.S. 77/177 near the community. Consider partnering with these organizations and providing seed money for special enhancement projects along these rights-of-way.
4. Amend the subdivision regulations¹ to specify alternative cross sections for each street classification (e.g. arterials, major and minor collectors, and local streets). The cross sections should allow for some flexibility to accommodate different design conditions and to be sensitive with their environs.
5. Specify within the street cross sections the provision for and dimensions of design elements including sidewalks, trails, bike lanes, utilities, and parkways.
6. Include among the street cross sections a boulevard section that includes a center median. This would provide for improved access management

1. Title 12, Subdivision Regulations, Section 12-3-2: Streets, Subsection B, Paving and Right-of-Way Width

7. Consider including street cross section standards that encourage the use of different colors in street paving and pedestrian infrastructure. Using different colors in paint and pavement creates added visibility for drivers and pedestrians. Textures also add variety to the street network and can be combined with colors for increased impact.
8. Consider amending the following provisions of the zoning ordinance:
 - a. The landscaping and screening standards² to specify the requirements for street trees within or adjacent to the right-of-way of street classifications. The spacing of trees shall be specified for each classification. Street trees would be planted by the property owner at the time of development or substantial redevelopment.
 - b. The point structure for site landscaping to require parking lot screening via berms, shrubs, or walls, or a combination thereof, along all parking and vehicular use areas adjacent to public street rights-of-way.
 - c. Increasing the minimum parking lot setback requirements from five to 10 feet along nonresidential property lines. The parking lot setback and bufferyard requirements adjacent to residential properties should vary according to the intensity of the adjacent district and use.
 - d. Supplemental provisions to specify the standards for fences and walls adjacent to all public rights-of-way. Such provisions should include minimum design parameters regarding their proximity to the right-of-way, allowable materials, orientation, structural integrity, and long-term maintenance.
5. Prepare streetscape plans for the following:
 - ◆ Waverly Street between South Avenue and the airport;
 - ◆ Grand Avenue from Waverly Street to 14th Street; and
 - ◆ 14th Street from north to south City limits.

These studies should include an assessment of existing conditions, including land use and zoning, building footprints, driveways and parking lots, signs, trees and vegetation, power poles and overhead lines, street cross sections, sidewalks and pedestrian improvements, pervious and impervious surfaces, and general visual characteristics. The design plans should include regulatory recommendations and identified improvements and their costs. An implementation plan should identify priorities, funding options and sources, and a timeline. Design principles for corridor design and enhancement may include:

 - a. Raised or depressed medians to break up the expanse of pavement and create space for runoff and drainage, grass, trees, signage, gateway treatments, and other amenities.
 - b. Street trees along the roadway. The species of trees must be tolerant of the environment and have roots that can coexist with streets and sidewalks. Incorporate xeriscaping to be more natural in appearance, environmentally sustainable, and require little maintenance.
 - c. A streetscape buffer on either side of the street pavement to create separation between the public and private realms and provide space for more “green” adjacent to the roadway. This area may be planted in grass or some form of groundcover or may include rock or mulch in some locations, which helps to alter the monotony of the street and create visual interest.

² Title 11, Zoning Regulations, Section 11-14-3: Landscaping and Screening

- d. Limiting the number, width, and location of new driveways, consolidating existing driveways, and defining the edges with curb cuts and patterned crossings to create a more appealing pedestrian environment.
- e. The use of decorative street lamps to form a unique community identity. The use of banners affixed to the lampposts would allow the community to personalize itself by advertising upcoming community festivities or public events.
- f. Placing overhead wiring underground or relocating them away from the primary corridors, replacing the typical wood poles with concrete poles, and

Public Transportation Facts and Figures

1. *Ponca City has a variety of public transportation services available within the community and immediate region. In fact, by comparison, Bartlesville has only a single transit service available. Transit options in Ponca City include:*
 - a. *Cimarron Public Transit System (CPTS), which operates in Ponca City and throughout Kay County.*
 - b. *Cherokee Strip Transit that operates out of Garber, but provides rides to nearby towns, as well as trips to Oklahoma City and Tulsa.*
 - c. *White Eagle Transit operating primarily as a service for the Ponca Tribe, but willing to carry others as space is available.*
 - d. *Rainbow Transit, which provides a private service that provides unsubsidized rides to locations as far as Oklahoma City.*
 - e. *Sooner Ride (LogistiCare) offering non-emergency service for Medicaid members to get to medical appointments.*
 - f. *Gene's Taxi Cab Service that provides demand-response taxi service within the City and all points beyond.*
2. *The loss of Greyhound bus service, as well as commuter air service, has created an increased demand for public transit.*
3. *CPTS serves roughly 185 to 190 trips each day throughout Kay County. Although overall ridership has remained steady, there appears to be a recent upward trend in the number of riders heading to employment destinations. For instance, Mertz Manufacturing now has three trips scheduled per day to get employees to work. Through their employer, these employees are able to use up to \$100 in pre-tax income for this service.*
4. *The City supports CPTS through an annual budget expenditure of \$25,000 (\$10,000 for a senior nutrition shuttle and \$15,000 for service operations).*
5. *CPTS hours extend from 5:00 a.m. to 6:00 p.m. on weekdays. There is Saturday service that is less in demand. Generally, an expansion of operating hours or increased weekend service must be warranted by increased ridership.*

consolidating the lines onto a single set of poles.

- g. Enhanced standards for traffic control devices and consolidating signs onto single poles or relocating signs to enhance the appearance of corridors.

Support intergovernmental efforts that result in significant regional roadway projects.



Currently, there is no fixed route transit or shuttle service within the community, although the Cimarron Public Transit System (CPTS) service does provide on-demand transit service for residents. This service is primarily aimed at the elderly and car-free who choose to call Cimarron for local dial-a-ride service. An example of fixed route service is the Big Orange Bus (BOB), which serves the OSU campus in Stillwater.



1. Actively participate in regional and statewide transportation planning activities to promote funding of facilities and improvements that benefit Ponca City.
2. Advocate through ODOT improvements for U.S. 60, U.S. 77, and U.S. 177 to improve traffic flow and safety conditions. These regional corridors are the lifeblood of Ponca City's economy, so any degradation could have detrimental effects on local mobility and business operations.
3. Seek to become actively involved in the multi-state discussions concerning the extension of Amtrak's Heartland Flyer (now operating between Oklahoma City and Fort Worth, Texas) from Oklahoma City to Kansas City. Presumably this route would be in relative near proximity to Ponca City, which would provide increased access to cities in Oklahoma and both Fort Worth and Kansas City provided there is a nearby stop location. Coordinate with other area cities to promote a stop location as near to Ponca City as feasible.
4. Continue work with standing agencies in the spirit of intergovernmental cooperation. For example, the Big Snake bridge improvements on old highway 60, coordinated with the County and tribal governments, are indicative of a multi-jurisdictional venture. Similar projects involving the City and other governmental entities should be evaluated as a means for achieving transportation projects that are regional in scale.

Expanding and Enhancing Public Transportation Services

A true transportation "system" must include a variety of travel options and mode choices, among them including public transit. For a City its size, Ponca City has a number of transit service providers. These include the Cimarron Public Transit System, Cherokee Strip Transit, White Eagle Transit, Rainbow Transit, and Sooner Ride, as well as a taxi cab service. However, according to participants of this plan development process,

there remain additional needs. The most significant need cited was increased hours of operation and days of service. Otherwise, participants spoke highly of the available services.

It is expected that the demand for service will increase in the community over time. This is due, in part, to an aging population and the presence and general desire for more retirement living options, as well as increased gas prices and a better understanding and concern for the environment. Therefore, ensuring alternative transportation options will be important to enhance mobility. Likewise, given limited resources, maximizing partnerships will be important as a long-term implementation strategy.

Collaborate with area transit service providers to seek ways and means for enhancing public transportation within the community and region.

1. Encourage the CPTS to replace and update their vehicle fleet, particularly to provide wheelchairlifts for improved ADA accessibility. While the City does not have a direct role in achieving this recommendation, it is one of the most pressing needs. Currently, a 17 percent funding match would be needed for new bus purchases as long as they are ADA accessible.
2. Explore ways the City can support the expansion of local transit services, especially to benefit the area's senior population and households without automobiles. Continue to provide an annual subsidy for specific programming.
3. Facilitate meetings and cooperation among the various public transit operators to seek opportunities for coordination of service, as well as other cooperative adventures such as joint maintenance and driver training. For instance, if Big Orange Bus service includes Ponca City then there should be schedule coordination so that riders can connect to other shuttles and transit options.

4. Partner with CPTS to regularly study the City's current and potential ridership to determine areas and sites with a high propensity for transit use. These areas may help to support a fixed-route circulator service as a long-term goal. For instance, a shuttle service operating on a loop system may operate at 30-minute intervals to take employees to and from their places of employment, as well as daily destinations for medical appointments, social service appointments, and convenience trips.

Heartland Flyer and Connecting Routes in Oklahoma and Texas

Heartland Flyer (OKC-FTW)
 Texas Eagle (LAX/SAS-CHI)
 Sunset Limited (LAX-ORL)

HEARTLAND FLYER
 OKLAHOMA'S PASSENGER RAIL CONNECTION

Pursue regional commuter rail possibilities that might arise through the Heartland Flyer (Amtrak) extension from Oklahoma City to Kansas City. The route currently runs from Oklahoma City to Fort Worth, Texas. The possibility for direct connections to Ponca City may include potential park-and-ride services to the nearest Heartland Flyer station, but any improvement in service will benefit all residents in the region.

5. Coordinate through the Ponca City Development Authority (PCDA) to solicit the involvement of employers in providing transit benefits to their employees. An existing example is Mertz Manufacturing, which coordinates three Cimarron Transit trips per day for its employees. Vanpooling is another option that employers can use to get workers to jobs as far away as Stillwater and Bartlesville.



Transportation systems management (TSM) refers to strategies to improve the efficiency of the transportation system through operational improvements such as signalization, access management, and turn restrictions, among others.

6. Coordinate with each of the transit providers to identify locations where the City may help to improve transit stops. Incorporate street-side transit improvements such as bus pull-out bays. Other transit improvements include sidewalks of an increased width with curb cuts and handicap accessible ramps; non-slip surfaces; marked, signed, and/or signaled pedestrian crossings; prevention of obstructions for wheelchair access; and installation of pedestrian actuated traffic signals. Low-cost transit-oriented street improvements include:

- a. Special left-turn lane signal phases at select intersections;
- b. Preferential signal timing to aid bus travel time;
- c. Initiation of parking regulations to clear the curb lane for bus operations;
- d. Improved identification of bus stop locations and installation of no parking signs; and
- e. Pavement markings in support of signing at transit stops.

7. Continue to make improvements to the City's street and sidewalk/trail systems, which helps to improve the efficiency of transit services and aids in community wide mobility.
8. Partner with each of the transit providers to sponsor a study to research peer transit providers as a means to identify alternative and innovative methods of funding. This may include a dedicated funding source, such as a local options tax, as well as agency and employer participation, contract sources, franchising arrangements, and business marketing and advertising programs.
9. Amend the zoning ordinance to incorporate transit-supportive site development standards and design criteria. Considerations include pedestrian access within parking lots and to adjacent sites and transit stop locations; sheltered areas for transit patrons; access and site circulation for transit vehicles; site geometrics for vehicle maneuvering; and siting of transit stops and user amenities.

Investigate public transportation initiatives that may connect Ponca City with nearby communities and allow for improved regional mobility and increased economic development opportunity.

1. Consider potential transit service options to the Industrial Park and Conoco Phillips

given their outlying locations. Given limited resources and the high cost of providing transit/shuttle service, the City may consider forming a partnership with Kay County or local employers to provide a vanpooling service or shuttle bus that would be mutually beneficial to all. Simply increasing marketing on the availability of CPTS service to new employers and employees would be one method of connecting transit service to those employees in need.

EVALUATION OF EXISTING ROADWAY LEVEL OF SERVICE (LOS)

As a means to understand local traffic patterns and the operating conditions of City streets, a level of service (LOS) analysis was performed. The analysis was conducted for each of the streets for which traffic volume data was available. This included each of the major streets (including, but not limited to, Grand Avenue, South Avenue, Highland Avenue, Hartford Avenue, Prospect Avenue, Waverly Street, Union Street, 14th Street, and Pecan Street), as well as others such as 5th Street, 7th Street, and Industrial Drive. The purpose of this assessment was to evaluate roadway conditions and areas of congestion.

Level of service (LOS) designations are qualitative measures of congestion that describe operational conditions along a roadway. They consider

traffic volume, speed, travel time, and delay. LOS is represented by letter designations along a continuum from "A" to "F" with "A" meaning free flow conditions and "F" indicating heavy congestion. General descriptions of each are as follows:

LOS Description

- A Free flow traffic conditions with very little delay
- B Good traffic flow and signal progression with some delays at intersections (higher than A)
- C Stable operating conditions with average traffic delays
- D Operating conditions result in lower travel speeds and higher delays at intersections
- E Unstable flow, poor signal progression, traffic near or at roadway capacity
- F Roadway operations are over capacity with extreme delays at intersections

A vast majority of the streets evaluated in the community are operating at a level of service of "A" through "C" – each of which is an acceptable operating condition. Those that had lower levels of service are displayed in **Table 4.2, Streets with Lower Levels of Service.**

The above street segments have operating conditions with lower travel speeds and delay at intersections during the peak morning and afternoon hours. As a result of this analysis, each

Table 4.2: Streets with Lower Levels of Service

Roadway	Location (from/to)	Functional Classification	Number of Lanes	Traffic Volume	LOS
Hartford Avenue	Ash to Waverly	Minor Arterial	2	8,050	E
14 th Street	Hartford to Highland	Principal Arterial	4	18,550	D
14 th Street	Bradley to Prospect	Principal Arterial	5	21,950	D
Ash Street	Hartford to Prospect	Minor Arterial	2	6,050	D
Pecan Street	Donner to Hartford	Minor Arterial	2	5,250	D
Pecan Street	Hartford to Lake Road	Minor Arterial	2	5,200	D
Prospect Avenue	Ash to Union	Minor Arterial	2	5,500	D
Union Street	Hartford to Highland Avenue	Minor Arterial	2	5,700	D
Bradley Street	5 th Street to 14 th Street	Collector	2	4,800	D

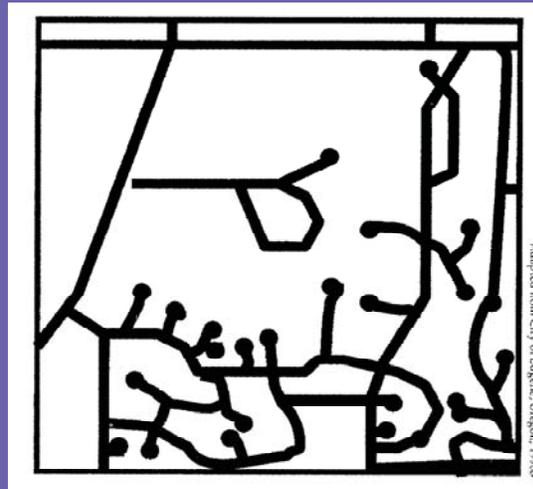
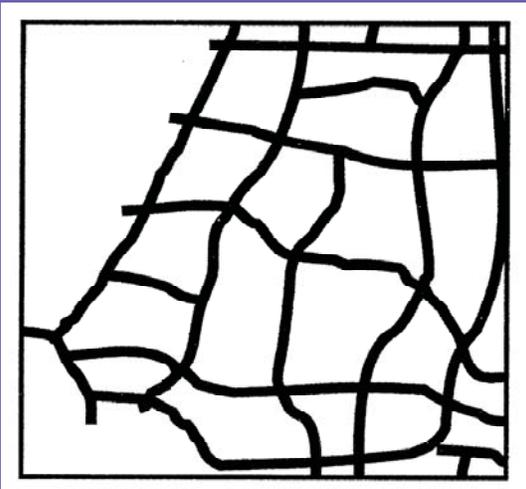
of the above segments should be programmed for some level of improvement. This may include improved transportation systems management (TSM) or roadway widening or other capacity improvements.

Ponca City 2030 Thoroughfare Plan

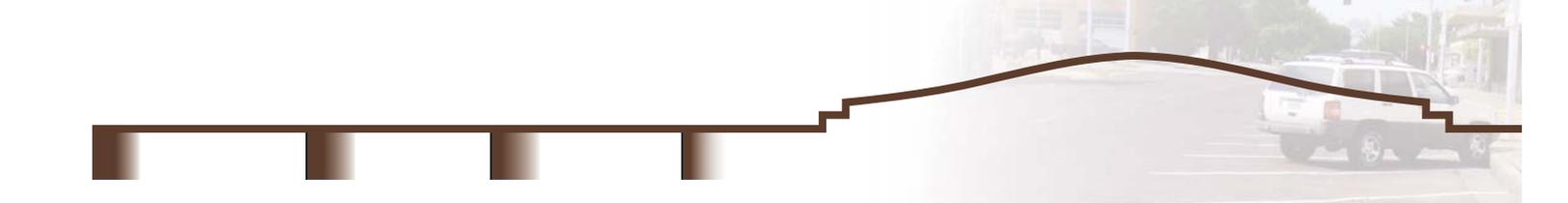
The City's Thoroughfare Plan is designed to provide for future travel needs by ensuring orderly development of the street system, including the extension and improvement of existing streets, as well as planned future roadways. The purpose

and importance of the Thoroughfare Plan is to ensure that adequate rights-of-way are preserved with a general alignment and sufficient width to allow for efficient expansion and improvement of the street system. In addition, it is designed to provide opportunities for other transportation modes so as not to place a fiscal burden on the community to fund extensive road improvements, which, in turn, require long-term maintenance.

Displayed in **Map 4.2, Thoroughfare Plan**, is the planned general alignments for the



Continuity of the street pattern is essential for its efficient and systematic function in the overall thoroughfare system.



extension of existing collector and arterial streets and planned new roadways. The Thoroughfare Plan represents a long-term vision for improving local mobility and expanding the transportation system concurrent with new development. Some of the arterial and collector streets identified on the plan may not be warranted or constructed within the next 20-year horizon of this plan. Nonetheless, the purpose of this plan is to preserve needed transportation corridors so that, as development occurs in the future, the City will have the ability to develop adequately-sized transportation facilities in appropriate locations.

The plan does not show future local streets because they function to provide access to individual parcels and their alignments will vary depending upon land development plans.

Local street alignment will be determined by the City as part of the subdivision development process. Likewise, collectors are required with new development, but are not shown in all cases on the Thoroughfare Plan. Nevertheless, they are vital to an efficient transportation network and must not be overlooked during the subdivision development process. Collectors should be situated to connect arterial streets with other collectors and local streets.

Key features and policies of the Thoroughfare Plan are as follows:

- ◆ Review of general development plans, and preliminary and final plats must be in compliance with the Thoroughfare Plan.
- ◆ The general location and alignment of thoroughfares must be in conformance with the Thoroughfare Plan. Any thoroughfare alignment that is inconsistent with the plan requires the approval of the Planning and Zoning Commission, upon recommendation of the Technical Review Committee, through a public hearing process. A change includes any proposal that adds or deletes a thoroughfare designation or changes the alignment that would affect adjacent lands.

- ◆ Variances from the Thoroughfare Plan should not be approved unless there is substantial evidence through a qualified traffic circulation and impacts study establishing a warrant for such amendment and showing how an alternative alignment or area street plan will provide improved circulation and an equal or improved level of service on all affected roadways.
- ◆ The necessary rights-of-way, in accordance with the roadway classification and corresponding cross sections, must be dedicated at the time of final platting. Properties proposed for subdivisions that include or are adjacent to an existing thoroughfare with insufficient right-of-way should be required to dedicate land to compensate for any deficiency.
- ◆ Existing streets adjacent to land proposed for subdivision should be continued so as to meet the continuity objectives of the Thoroughfare Plan. The arrangement of streets in a new subdivision – including private subdivisions – must make provision for continuation of the existing arterial and collector streets in the adjacent areas.
- ◆ Landowners are responsible for the dedication of rights-of-way and may be responsible for constructing sections of roadways located within or adjacent to their property.
- ◆ The total width of street rights-of-way must be dedicated at the time of development. The dedication of one-half of the required right-of-way should not be accepted unless the other half already exists or there is a plat on file for the adjacent land.
- ◆ To maximize mobility, collector streets must provide access and circulation both within and between neighborhoods. Collectors should connect arterial streets rather than allowing development to have a street system with no points of ingress and egress other than the major entrance.

- ◆ Collectors must be situated to connect arterial streets with other collectors and local streets. Their continuity in the roadway system is essential to its function of distributing traffic within the hierarchical system.
- ◆ The fact that a thoroughfare is shown on the plan does not represent a commitment to a specific timeframe for construction or that the City or other governing body will build the roadway improvement.
- ◆ Individual thoroughfare improvements may be constructed by a variety of implementing agencies, including the City, Kay County, Oklahoma Department of Transportation, private developers, and/or intra-governmental agencies.

Roadway Design Standards

This section describes the existing and proposed street design standards for each of the functional classifications reflected on the Thoroughfare Plan. The current design standards are provided in the Subdivision Regulations. They include paving and right-of-way widths for arterial, collector, local, and commercial/industrial streets. While

street classification reflects the function the street is intended and designed to serve as part of the street network, the design standards relate to traffic volume, design capacity, and level of service. The existing requirements are shown in **Table 4.3, Existing Roadway Design Standards**.

As displayed in Table 4.3, the paving widths of local and collector streets are not clearly defined. Instead, they are now determined at the time of subdivision according to “the type of land use involved, the terrain of the land, and the density of development,” which is determined by the Planning Commission upon recommendation of the Technical Review Committee. As a result, the widths of these streets may vary in width from four to six feet, which adds extra construction expense and impervious area leading to increased stormwater runoff. This plan advocates more definitive street right-of-way and pavement width standards, with alternatives based on the volume of traffic. In this way, the standards are known at the time of subdivision.

In the administration and enforcement of the Thoroughfare Plan, unique situations will occasionally arise where physical conditions in certain areas conflict with the need for widening of designated thoroughfares to the planned right-of-way width and roadway cross section. Such special circumstances require a degree of flexibility and adaptability in the implementation of the plan. Acceptable minimum design criteria and special roadway cross sections may have to be applied in constrained areas where existing conditions limit the ability to meet desirable standards and guidelines. Special roadway cross sections should be determined on a case-by-case basis when a unique design is necessary, and these exceptions should be subject to approval by the City Transportation Engineer. Otherwise, standard roadway cross sections should be used in all newly developing areas and, whenever possible, in existing developed areas.

Streets are grouped into functional classes according to their role for traffic movement and

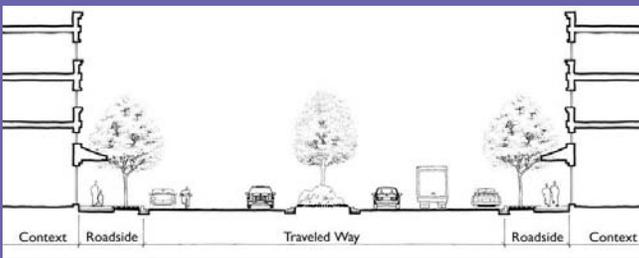


Table 4.3: Existing Roadway Design Standards

Category	Paving Width (ft)	Right-of-Way Width (ft)
Local Streets	27-33	60
Collector	33-37	70
Arterial	49	100
Commercial and Industrial	33	70

land access. Characteristics of each functional class differ to meet the intended purpose. The functional classification of area streets includes arterials, major and minor collectors, and local streets.

Local Streets

Local streets are intended to provide direct property access. Through the use of techniques such as geometric designs, traffic control devices, and traffic calming, thru-traffic and higher speeds should be discouraged.

The current standard for local streets is a right-of-way width of 60 feet and a pavement width between 27 and 32 feet. These widths do not specify the street cross section as to how the right-of-way is allocated. As a result, local street widths tend to vary. Furthermore, increased pavement width adds to development costs, occupies additional space (thereby reducing development efficiency), may encourage higher speeds, and results in increased impervious surface and stormwater runoff. Therefore, this plan advocates the use of alternative street

cross sections that are based on characteristics including the type of access, number of dwelling units served, and the units' average frontage dimensions. The characteristics relate to density and the number of vehicles generated by the development. The benefits of this approach are definitive standards that tend to reduce travel speeds and provide more green space and a greater distance between the street and sidewalk.

The actual local street dimensions must be determined at the time of amending the subdivision regulations. By way of example, **Table 4.4, Typical Local Street Standards**, reflects the requirements for right-of-way and the number and widths of lanes, parking, curbs, parkways, and sidewalks, each of which are based on lot frontage and number of dwelling units.

Displayed in **Figure 4.1, Local Street Sections**, are two alternative cross sections requiring a minimum 60 feet of right-of-way with minimum pavement widths of 27 and 31 feet, respectively. However, a local street with a narrower lane

Table 4.4: Typical Local Street Standards

Lot Frontage (ft.)/Lot Area	Number of Dwelling Units Served	Total ROW	Travel		Parking		Curb Width	Parkway Each Side	Sidewalk	
			No. Lanes	Lane Width	Number	Width			Side	Width
Greater 130' 1 acre +	10 or less	40'	1	12'	0	7'	0	14'	0	5'
	11 to 44	44'	2	8'	0	7'	0	14'	0	5'
	45 to 159	52'	2	11'	0	7'	0	10'	2	5'
	160 to 240	54'	2	12'	0	7'	0	10'	2	5'
90'-129' 15,000 sf - 40,000 sf.	10 or less	39'	1	14'	0	7'	0	10'	1	5'
	11 to 44	50'	2	9'	0	7'	1'	10'	2	5'
	45 to 159	59'	2	10'	1	7'	1'	10'	2	5'
	160 to 240	64'	2	12'	1	7'	1.5'	10'	2	5'
50'-89' 5,000 sf - 14,999 sf.	10 or less	50'	2	8'	1	7'	1'	10'	1	5'
	11 to 44	67'	2	10'	2	7'	1.5'	10'	2	5'
	45 to 159	71'	2	12'	2	7'	1.5'	10'	2	5'
Less than 50' 4,999 sf. or less	160 to 240	71'	2	12'	2	7'	1.5'	10'	2	5'
	10 or less	61'	2	9'	2	7'	1.5'	8'	2	5'
	11 to 44	65'	2	11'	2	7'	1.5'	8'	2	5'
	45 to 159	67'	2	12'	2	7'	1.5'	8'	2	5'
	160 to 240	67'	2	12'	2	7'	1.5'	8'	2	5'

width would be limited to developments with fewer, larger lots taking access onto the local street. On-street parking would not be allowed on the narrower street width, but would be allowed on one side of the typical 31-foot street section. Such parking restrictions necessitate review of lot sizes, setbacks, and on-lot parking provisions. These pavement widths are designed to carry immediate local traffic effectively, still be sufficient to accommodate fire apparatus, and yet be an appropriate width to accomplish neighborhood traffic calming.

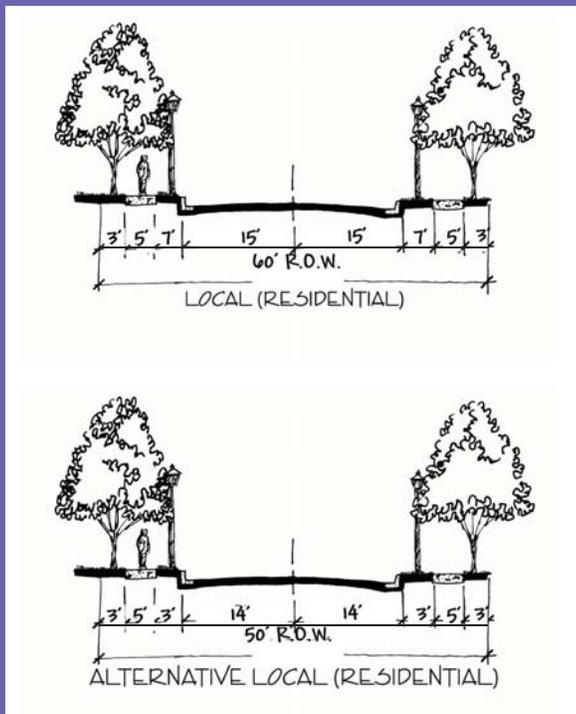
Collector Streets

Subdivision street layout plans and commercial and industrial districts must include collector streets in order to provide efficient traffic ingress/egress and circulation. Since collectors generally carry higher traffic volumes than local streets, they require a wider roadway cross section and

added lanes at intersections with arterial streets to provide adequate capacity for both through-traffic and turning movements. However, since speeds are slower and more turn movements are expected on collectors versus arterials, a higher speed differential and much closer intersection/access spacing can be used than on arterials.

This plan proposes classifications of major and minor collectors distinguished by volume of traffic. A major collector is designed for 7,500 to 15,000 vehicles per day (VPD), which requires 70 feet of right-of-way and a pavement width of 36 feet, consistent with the current standards. Alternatively, a minor collector may allow a right-of-way of 60 feet and a pavement width of 32 feet, which is for 1,000 to 7,500 VPD, as displayed in **Figure 4.2, Collector Street Sections**. The subdivision regulations must include provisions to distinguish the warrant and criteria for designating major and minor collector roadways as they are not reflected on the Thoroughfare Plan.

Figure 4.1: Local Street Sections



Local residential streets maintain the current right-of-way width and alternative pavement sections.

An optional rural, large lot (minimum one-acre) development is collectors without sidewalks or curb and gutter. This permits development to maintain a rural character and provide a natural, rather than structural, drainage system. In this case, an interior trail system would be necessary to compensate for the loss of sidewalks. Pavement width would be reduced to 30 feet, while the right-of-way requirement would remain at 60 feet to account for the space required for open or covered ditches.

Arterial Streets

Arterial streets form an interconnecting network for broad movement of traffic. Although they usually represent only five to 10 percent of the total roadway network, arterials typically accommodate between 30 and 40 percent of an area's travel volume. Since traffic movement, not land access, is the primary function of arterials, access management is essential to avoid traffic congestion and delays caused

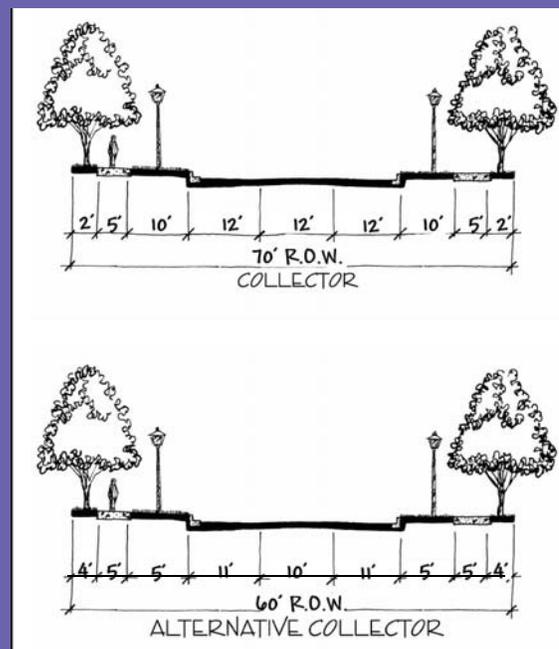
by turning movements for vehicles entering and exiting driveways. Likewise, intersections of arterials with other public streets and private access drives should be designed to limit speed differentials between turning vehicles and other traffic to no more than 10 to 15 miles per hour. Signalized intersection spacing should be long enough to allow a variety of signal cycle lengths and timing plans that can be adjusted to meet changes in traffic volumes and maintain traffic progression (preferably one-quarter to one-half mile spacing). According to the current thoroughfare design standards listed in the subdivision regulations, right-of-way for arterials is required to be 100 feet, with a pavement width of 49 feet.

This plan proposes two alternative cross sections for arterial streets, as shown in **Figure 4.3, Arterial Street Sections**. One is a divided four-lane street section with a 15-foot center median and 48 feet of pavement within 100 feet of right-of-way. The alternative section reduces the right-of-way to 85 feet and includes four undivided lanes. Both sections include an eight-foot trail on one side and a five-foot sidewalk on the other. The latter may also be within the same 100 feet of right-of-way, offering flexibility for widening or constructing a median and/or intersection turn lanes at a later date.

Plan Implementation and List of Transportation Improvements

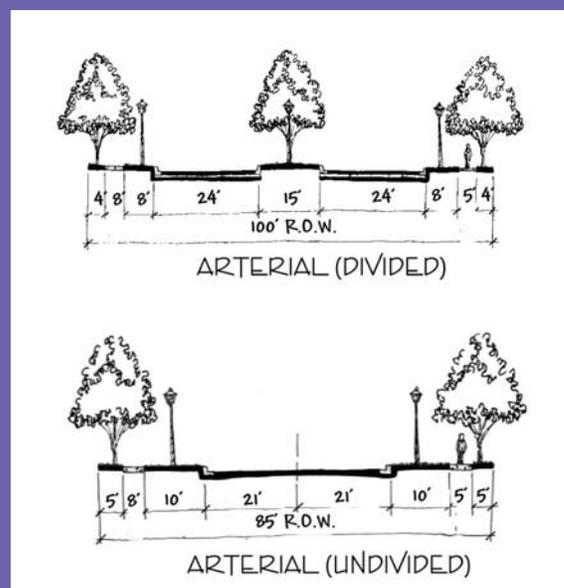
Implementation of thoroughfare system improvements will occur in stages over time as Ponca City grows and, over many years, builds toward the ultimate thoroughfare network shown by the Thoroughfare Plan. The fact that a future thoroughfare is shown on the plan does not represent a commitment to a specific timeframe for construction or that the City – or other jurisdiction – will build the roadway improvement. Individual thoroughfare improvements may be constructed by a variety of implementing agencies, including the City, Kay County, and/or the Oklahoma Department of Transportation (ODOT), as well as private developers and land

Figure 4.2: Collector Street Sections



Collector roadways would maintain 60 feet of right-of-way with alternate widths of 36 and 40 feet.

Figure 4.3: Arterial Street Sections



Arterial streets may be divided or undivided and may vary in widths.

owners for sections of roadways located within or adjacent to their property. Road construction can be implemented by individual entities or in partnership.

The City, County, and ODOT, as well as residents, land owners, neighboring tribes, and subdividers, can utilize the Thoroughfare Plan in making decisions relating to planning, coordination, and programming of future land development and transportation improvements. Review of preliminary and final plats for proposed subdivisions in accordance with the City's subdivision regulations should include consideration of compliance with the Thoroughfare Plan. This will ensure the consistency and availability of sufficient rights-of-way for the general roadway alignments shown on the plan. It is particularly important to provide for continuous roadways and through connections between developments to ensure mobility and emergency access. By identifying thoroughfare locations where rights-of-way are needed, landowners and subdividers can consider the roadways in their subdivision planning, dedication of public rights-of-way, and provision of setbacks for new buildings, utility lines, and other improvements located along the right-of-way for existing or planned thoroughfares.

Recommended Transportation Improvements

The Thoroughfare Plan is a long-range plan that identifies the location and type of roadway facilities that are needed to meet projected long-term growth within the area. The Recommended Transportation Improvements, however, is a list of construction projects that implement the Plan. When evolved into an official Transportation Improvement Program, this list can serve as a budgeting and implementation tool to enable the City to plan specific corridor improvements. The Phase I and Phase II categories give flexibility so the transportation projects can occur as the need arises. Many of the proposed arterial and collector streets identified on the Thoroughfare Plan are on the list as long-term improvements.

Also, many of the most congested streets are listed (or have alternatives listed) on the proposed list of improvements. However, one of the purposes of the improvement list on the other page is to specify predicted projects so the City will have the ability to fund transportation facilities at that future time.

Table 4.5: Recommended Transportation Improvements

Recommended Transportation Improvements				
Phase I - Years 1 through 5				
Road	Functional Classification	From	To	Improvement
Bradley Av.	Collector	Rice St.	Donner Av.	Road extension
Hartford Av.	Minor Arterial	Ash St.	Waverly St.	Widen from 2 to 4 lanes
Hubbard Rd.	Principal Arterial	Union St.	14th St.	Widen from 2 to 4 lanes
L.A. Cann Dr.	Minor Arterial	Kygar Rd.	Ginger Dr.	Replace bridge over Turkey Creek
L.A. Cann Dr.	Minor Arterial	East Dam Rd.	Checkstand Rd.	Replace bridge over Lake Ponca
Lake Rd.	Minor Arterial	Pecan Rd.	E. of Kygar	Widen from 2 to 4 lanes
Prospect Av.	Minor Arterial	Union St.	Ash St.	Widen from 2 to 4 lanes
Rail crossing safety improvements at 10 at-grade crossings				Add quad gates
Phase II - Years 6 through 10				
Road	Functional Classification	From	To	Improvement
5th St.	Minor Arterial	Knight Av.	Hubbard Rd.	Road extension
Central Av.	Collector	14th St.	Pecan Rd.	Realign/New construction
El Camino St.	Collector	Wildwood Av.	Lake Rd.	New construction
Hubbard Rd.	Principal Arterial	Union St.	14th St.	Railroad underpass at BNSF RR
New (unnamed)	Collector	C St.	Chapel Hill Rd.	Road extension
New (unnamed)	Collector	Pecan Rd.	El Camino St.	New construction n. of Lake Rd.
Turner St.	Collector	Prospect Av.	Hubbard Rd.	Road extension
Union St.	Minor Arterial	Prospect Av.	Hubbard Rd.	Construction super two-lane
Phase III - Years 11 through 15				
Road	Functional Classification	From	To	Improvement
Ash St.	Collector	Prospect Av.	Hubbard Rd.	Road extension
Flomable St.	Collector	Highland Av.	Industrial Blvd.	New construction
Hubbard Rd.	Principal Arterial	Waverly St.	Union St.	Widen from 2 to 4 lanes
Knight Av.	Collector	5th St.	Ash St. Extension	Road extension
Larkspur Dr.	Collector	Kygar Rd.	New (unnamed)	Road extension
Liberty Av.	Collector	Waverly St.	Flomable St.	New construction
New (unnamed)	Collector	Hartford Av.	Prospect Av.	New construction near W. Lake Ponca
New (unnamed)	Collector	Pecan Rd.	New (unnamed)	New construction near W. Lake Ponca
New (unnamed)	Collector	Prospect Av.	Hubbard Rd.	New construction w. of BNSF RR
New (unnamed)	Collector	Lake Rd.	Larkspur Dr.	New construction
Waverly St.	Principal Arterial	Sykes Blvd.	Hubbard Rd.	Widen from 2 to 4 lanes