





## Introduction

The transportation system in Parkville involves different modes of transportation to achieve the safe, efficient and convenient movement of persons and goods. The ability to transport people and goods from one place to another is one of the basic components on which the community's economic and social systems depend. Long range planning helps ensure the street system is able to expand efficiently to manage future growth and remain consistent with the Future Land Use Plan, and provide for a sustainable future.

Important planning priorities identified by the citizens of Parkville for the community's transportation system include the call for action to:

- provide a connected street network;
- upgrade and construct new street systems sensitive to the context and terrain in which they are located; and
- provide multi-modal choices.



*A multi-modal transportation network provides both on-street and off-street accommodations for bikers, pedestrians and other non-vehicular transportation options.*



*Future improvements to state highways should be constructed with a boulevard character sensitive to the context of the adjoining land uses. These characteristics should include enhanced streetscape and aesthetic treatments such as colorful landscaping.*

## “Connect” the Community

A quality transportation network system that promotes safe, efficient and convenient travel throughout the community will play a significant role in future development opportunities and quality of life for residents.

Mobility throughout Parkville is significantly impacted by the terrain, which is an asset in establishing the community’s character, but a challenge for providing street connectivity. The Parkville planning area has incomplete roadway and public utility systems which at times have contributed to a piecemeal land use pattern in which large tracts of undeveloped land exist side by side with developed properties.

### Local Connectivity

Increasing connectivity between developed areas in Parkville is critical to ensure a functional street network, sustainable neighborhoods and sufficient public safety in the future. Rugged terrain is the typical barrier to connecting neighborhood streets within and between developments. However, future planning must provide a minimum number of street connections between neighborhoods to disperse traffic, provide multiple travel route opportunities and ensure efficient emergency service responses. Reducing the length of travel trips conserves energy, enhances air quality, improves safety and reduces overall costs.

Future transportation planning and improvements should provide and maintain connections throughout the community. This includes designing new neighborhoods with interconnected networks of pedestrian-friendly and attractively landscaped streets, sidewalks and trails. A minimum number of street connections, built in a pattern that disperses traffic and provides multiple travel routes between neighborhoods, should be provided.

Primary local connectivity objectives include:

- Layout streets to follow existing terrain, minimizing the impact on the environment.
- Limit dead-end streets (e.g., cul-de-sacs) to areas not practical for direct street connections or with existing terrain that requires them.
- Provide for non-vehicular transportation system that reduces dependence on a sole source of transportation (especially for short trips).
- Ensure convenient access by emergency services.



*Local street designs should be consistent with the character of the area. ‘Green’ street design with reduced pavement widths and a natural storm water management approach should be used to reduce environmental impacts and future maintenance costs.*



*45 Hwy east of Parkville provides opportunities for both off-street bikers and pedestrians, as well as a wide shoulder which is suitable for on-street adult bikers.*

## Transportation - Major Roadway Plan

The Thoroughfare Network Plan represents the existing and recommended transportation system for Parkville and the surrounding planning area. The community's economic and social systems depend on the ability to transport people and goods from one place to another.

Many existing roadways in the planning area are currently constructed to rural roadway standards and cannot accommodate new development-related traffic volumes.

Long range planning helps ensure the street system is able to expand efficiently to manage future growth and to remain consistent with the **Future Land Use Plan**. The **Major Roadway Plan** identifies anticipated future street network needs to accommodate future development.

### Street Classifications

Parkville's street and highway network is classified by function, which is based on the type of land uses for which the roadway is intended to serve. Roadways are not classified by the amount of traffic they carry. However, higher traffic volumes are often consistent with upper level roadway classifications. The factors in roadway classifications are:

- the level of through-traffic movement; and
- access to adjacent land or individual properties.

The functional street classification system assists in the planning, design, management and maintenance of transportation facilities. These roadway classifications outline the right-of-way and design standards for the ultimate construction of a roadway. However the ultimate design of the roadway should be based on its function, traffic volume, and adjacent land use. The City currently uses APWA standards for street design. However, local street design standards should be adopted to ensure consistency with the Parkville community character.



*Citizens and members of the Planning Commission reviewed draft maps of the Future Land Use Plan and Major Roadway Plan during a Community Open House. Important priorities identified from the community meetings included the need for connected streets, sidewalks, and trails throughout Parkville, as well as the need to design street improvements in a manner consistent with the character of the community.*

The functional street classification is based on a hierarchical structure identifying the operation of all roadways within the City's transportation network. The hierarchy and description of these classifications in ascending order is:

- interstate/freeways;
- expressways;
- primary arterial streets;
- secondary arterial streets;
- collector streets; and
- local streets.

**Interstate / Freeways:** are multi-lane roadways such as I-435 which are designed with a function to accommodate high volumes of vehicles between major destinations at high speeds, with no at-grade direct access for adjoining land uses.



**Expressways:** are multi-lane roadways such as 45 Hwy designed with a function to accommodate high volumes of regional travel between major destinations at moderate to high speeds. These corridors institute access management standards with limited at-grade access for adjoining land uses. Where access to development is permitted it should be provided through public street intersections rather than private drives. Expressways should include landscaping and other amenities that reflect a local character versus typical highway appearance.

**Primary Arterial Streets:** are multi-lane roadways such as 9 Hwy intended to accommodate high volumes of vehicular traffic at moderate speeds. Such roadways should have a “boulevard” character with landscape median and streetscape enhancements that create a distinctive image for Parkville. At-grade direct driveway and street access to these roadways is allowed, but limited, in order to preserve the vehicular capacity of the corridor. Multi-modal accommodations should be provided.

**Secondary Arterial Streets:** are 2-3 lane roadways such as Crooked Rd. intended to accommodate moderate volumes of vehicular traffic at lower speeds than primary arterial streets. The design and character of these roadways should be sensitive to the context of the surrounding area and the terrain in which they are located.

Typically continuous medians are not provided for these streets, except at major intersections, in locations where enhanced landscape and aesthetic improvements are desired, and in areas where restricted turning movements are necessary for safety. Multi-modal accommodations should be incorporated as part of the roadway design.

**Collector Streets:** are 2-3 lane roadways such as Riss Lake Dr. intended to accommodate lower volumes of vehicular traffic at low speeds suitable for neighborhood and business district environments. Medians may be provided at major intersections and areas where enhanced landscape and aesthetic improvements are desired. Multi-modal accommodations should be incorporated as part of the roadway design. Street trees and wider sidewalks should be provided on both sides of the street.

**Local Streets:** are 2 lane roadways such as 6th St. intended to accommodate low volumes of vehicular traffic at low speeds, while providing direct access to abutting properties. Pedestrian and bicycle accommodations should be incorporated into the roadway design. Street trees should be provided, as well as wider sidewalks on both sides of the street in moderate density and mixed use land use areas.



The 45 Hwy roundabout at National Drive is distinctly recognizable and provides traffic calming, traffic control, and an aesthetic enhancement at the intersection of a collector street with an arterial street.



Future improvements to the 9 Highway corridor and entrance on the east side of downtown should create a gateway and more efficiently manage traffic.





### Alternative ‘Green Infrastructure’ and Roadway Design

“Green” infrastructure is an approach to wet weather management that is cost-effective, sustainable and environmentally friendly. According to the U.S. Environmental Protection Agency (EPA), green infrastructure can reduce reliance on traditional storm water structures (e.g., curb and gutter, storm drains, ditches, creeks, treatment plants, etc.) that are expensive to build, operate and maintain. When applied to transportation, green infrastructure can also reduce impervious surfaces and runoff, reduce construction and maintenance costs, aid in traffic calming, and help protect highly valued natural habitats, forests and agricultural lands.

Context-friendly street designs in Parkville should incorporate alternative standards that respect local topography, conserve open space, and protect natural features and water quality. Alternative designs can often reduce pavement widths without sacrificing current or future capacity or safety compared to conventional designs. In appropriate locations, such designs may include concrete aprons rather than raised curbs, and include vegetated swales with plantings similar to rain gardens in lieu of enclosed storm water pipe systems along roadways. As an added benefit to Parkville green design often results in roads with a “rural” appearance characteristic to much of the planning area.

In Parkville, opportunities to implement “green” infrastructure design may include:

- adoption of a Best Management Practice (BMP) Manual for use in road and parking lot design by the public and private sector;
- use of native vegetation for landscaping;
- use of rain gardens and pervious paving for source control;
- rainwater harvesting for non-potable uses such as landscape irrigation;
- natural ditches, swales and channels, in lieu of piped systems and curbs and gutters; and
- wet retention ponds and constructed wetlands for regional retention.



*‘Green’ street design can minimize the need for enclosed storm water piping while improving the quality of storm water runoff. The street in this photo includes shallow, mulched drainage swales planted with native vegetation to help absorb and treat runoff.*



*Constructed wetlands can be used to collect and filter runoff from streets and other impervious surfaces.*



*The design of the parking lot north of Parkville City Hall serves as an example of how storm water can be managed to increase on-site infiltration while reducing overall runoff volumes from surrounding roads, drives and parking.*

## Transportation Alternatives

There are currently few alternatives to combustion engine automobile transportation in Parkville, even for short trips. A sustainable community in the future must include convenient access to a variety of transportation alternatives, including pedestrian and bicycle systems, public transit, alternative fuel vehicles and other multi-modal transportation options which reduce pollution and land development impacts from automobile use.

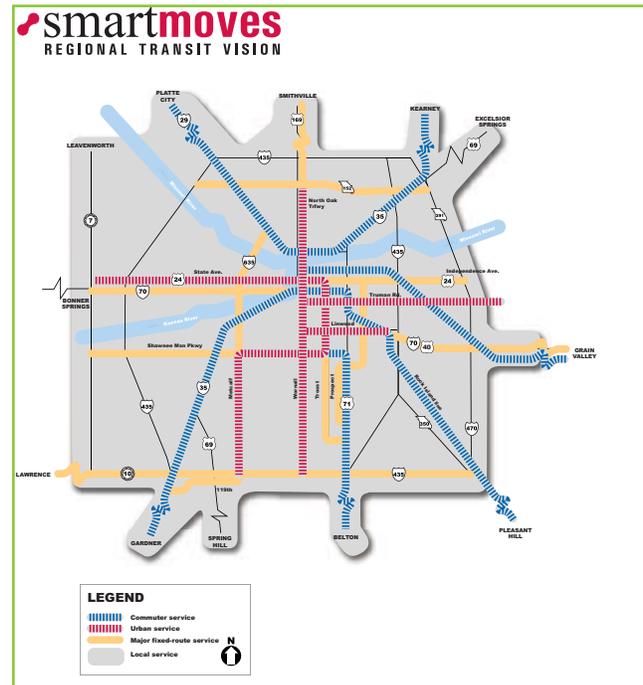
Important priorities identified by community residents include the need to improve “walkability,” and the need for alternative transportation connections from neighborhoods to destinations such as Downtown Parkville, English Landing Park, Park University, the Parkville Connections, the Southern Platte County Community Center, Graden School and other community resources.

One strategy for enhanced connectivity is constructing the trails system identified in **Chapter 5: Civic and Open Space**. Another strategy is to incorporate pedestrian and bicycle accommodations in future street and highway improvement projects. This will require the City to partner with other jurisdictions to implement regional transportation initiatives such as trails plans adopted and being implemented by Platte County and others. It will also include coordination with the Mid-America Regional Council **SmartMoves** regional transit plan – a planning framework for public transportation / rapid-transit which envisions bus service connecting Parkville to the KCI Airport and downtown Kansas City, Missouri. In order to ensure future transit facilities can be accommodated, a location study and conceptual plans for facilities such as bus stops and park and ride locations should be developed and considered with new development plans.

At the local level, options for alternative fuel and electric vehicle use should be implemented and considered with new development plans. These alternatives will provide more local transportation options, supplement Parkville’s “resort” lifestyle and create additional economic opportunities.



*In order to accommodate the use of alternative fuel and alternative technology vehicles, it will be necessary to provide alternative fuel refueling stations, such as this electric plug-in “juice point.” Alternative fuel stations may also include propane or compressed natural gas, liquid natural gas, methanol, ethanol, and hydrogen.*



**Vision Statement:** *The Smart Moves Plan envisions a Kansas City region where public transit is a viable and cost-effective transportation choice for all citizens, and where public transit investments help shape the form of a regional community that is more accessible, walkable, healthy, efficient and attractive*

## Regional Transportation System Management

Street system planning, implementation and maintenance in Southern Platte County are the responsibility of multiple often overlapping jurisdictions. The Missouri Department of Transportation, Platte County, regional road districts, local municipalities and private developments all have responsibilities within and around Parkville. Although these responsibilities end at defined jurisdictional lines, the traffic and its impact do not.

In order to efficiently and effectively manage the transportation system, the City needs to formally coordinate with these entities to document existing conditions, identify and prioritize needed improvements, and plan for system improvements. Strategies such as establishing uniform data collection methods, standardizing traffic study requirements and data reporting, coordinating mapping and enacting data sharing agreements will benefit all entities, help improve effectiveness and reduce costs.

A major priority identified during the planning process was the need to model and routinely evaluate traffic in Parkville. Such efforts would be greatly enhanced as a coordinated effort among all the Southern Platte County partners.

## Major Street Enhancements

The design and appearance of major roadways through Parkville significantly impact the image of the community. Existing major thoroughfares such as 9 and 45 highways through the community, as well I-435 and FF-Hwy through Parkville's future growth areas need to be designed to appropriately accommodate traffic needs while incorporating streetscape and urban design standards consistent with the small town character of Parkville.

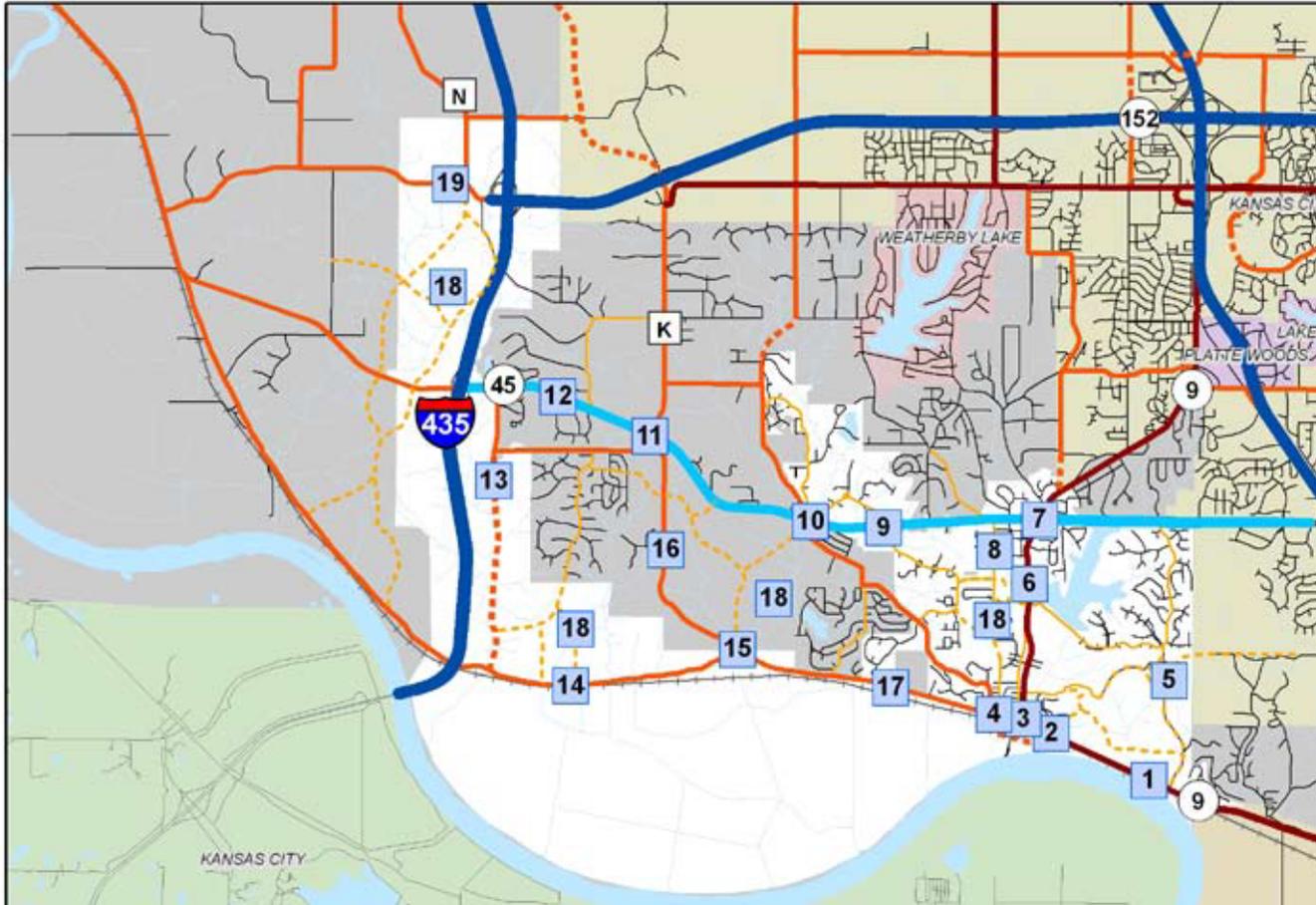
The City should work closely with MoDOT to ensure future improvements to state highways are constructed with a boulevard character sensitive to the context of the adjoining community land uses. Future improvements to major roadways should address:

- landscaping and streetscape elements such as decorative street lights, pedestrian scale lighting and other pedestrian amenities, unique patterns for crosswalks, public art, unique street signage, etc. to create special identity; and
- mobility, safety and comfort of pedestrians and bicyclists.



*Highway improvements through Downtown Parkville should include aesthetic, pedestrian, and intersection improvements compatible with the historic character of the area, such as this intersection in Plano, TX.*

## Major Investment Areas



Throughout the planning process, residents identified the need to improve the transportation network as the top infrastructure issue facing Parkville. Needed improvements range from providing street connections, upgrades from rural to urban street conditions, multi-modal improvements, and widening projects for increased vehicular capacity.

Many of the major roadways in the Parkville planning area are managed by the Missouri Department of Transportation (MoDOT) or Platte County. Therefore close coordination with other jurisdictions is necessary in order to fully implement needed improvements.

The following is a brief background and summary of expectations for specific improvement projects.

### Project (1) - 9 Hwy / River Park Dr. east of downtown

Expand 9 Hwy from Riverside to the 9 Hwy Bridge over White Alloe Creek to a 3-4 lane access-controlled cross arterial street section. Improvements should take into consideration planned development north of 45 Hwy and the potential need for signalization of intersection with Coffee Rd. Preliminary engineering for the improvements should be completed in the near-term so necessary future right-of-way can be preserved.

### Project (2) - 9 Hwy Bridge

Replace the 9 Hwy bridge over the White Alloe Creek. The bridge should be widened to accommodate additional travel lanes, improved pedestrian access on both sides of the bridge, increased drainage capacity, and improved aesthetic appearance of this important entrance to Parkville. Improvements should be designed to include gateway features such as ornamental lighting and public art either at time of construction or as additions at a later date.

### Project (3) - 9 Hwy / East St. / First St. triangle

Improvements to the triangle are needed to increase capacity, reduce congestion and improve pedestrian crossings. Similar to the 9 Hwy Bridge, improvements should be designed to a higher aesthetic standard due to the prominent location at the primary entrance to Downtown Parkville.

### Project (4) - Downtown bypass

The current configuration of the connection between 9 Hwy and Mill St. through downtown is inadequate. The offset between First St. and Mill St. on Main St. requires vehicles to jog between the intersections with limited visibility of side traffic and pedestrians. The current configuration leaves few alternatives for improvement. Near-term improvements to visibility and pedestrian crossing should be implemented. Reconfiguration and bypass alternatives must be evaluated and a solution planned so implementation alternatives can be integrated with downtown improvements, including railroad expansion.

### Project (5) - Coffee Road

Improving Coffee Rd. as collector street connecting Park University to surrounding developments and the arterial street network will provide an important north-south link in eastern Parkville. The roadway design must be coordinated with development of the surrounding property and designed to serve as a local collector street rather than a regional bypass alternative to 9 Hwy.

### Project (6) - 9 Hwy / East Street from Downtown Parkville to 45 Hwy

Implement access management restrictions, improve the intersection with Main St., and widen 9 Hwy from Main St. to 45 Hwy to improve capacity and safety. 9 Hwy functions as an arterial street, but has limited ability to accommodate anticipated increased traffic volumes as Parkville and surrounding communities grow. This existing two lane road is restricted by existing terrain, existing development close to the road, numerous unrestricted access points, limited turn lanes, lack of shoulders in many sections, and lack of pedestrian and bicycle accommodations.

### Project (7) - Intersection of 9 Hwy and 45 Hwy

Improved intersection capacity is needed to accommodate projected increased traffic volumes. Improvement plans must accommodate safe and convenient pedestrian and bicycle crossings for the regional trail along 45 Hwy, access to Graden School and other community destinations south of 45 Hwy.

### Project (8) - Bell Road

Improvements to Bell Road are needed for safety access to downtown Parkville, and increased capacity. Design plans should include improved sightlines and storm water management, and on- or off-street pedestrian facilities. Plans may require adjusting alignments to avoid environmental impacts and impacts to existing development.

### Project (9) - 45 Hwy from 9 Hwy to K Hwy

Widen 45 Hwy to improve capacity and incorporate access management. The highway design should result in the look and feel of a local boulevard rather than a regional state highway. Desired amenities include landscaping, access to existing development, improved public safety, pedestrian access and crossings and bicycle facilities.



## Project (10) - North and South Crooked Rd

Realign North and South Crooked Rd to eliminate offset access. The alignment should be coordinated with future development of the southwest corner of the 45 Hwy intersection. As existing sections of North and South Crooked Rd are improved, storm water management, pedestrian and bicycle facilities and access management improvements should be provided.

## Project (11) - Intersection of 45 Hwy and K Hwy

MoDOT is currently reconstructing the intersection with a roundabout to improve capacity and significantly improve public safety. Future improvements should include pedestrian and bicycle facilities.

## Project (12) - 45 Hwy from K Hwy to I-435

The I-435 / 45 Hwy interchange is projected to be a major growth area. 45 Hwy should be widened in order to improve regional access between K Hwy and I-435. Although no near-term funding source has currently been identified, preliminary engineering should be completed to protect necessary future right-of-way and ensure coordination with new development.

## Project (13) - Brink-Myers Road

Extend Brink-Myers Rd south to River Rd to provide additional north/south access for surrounding development. The roadway design should have a boulevard character and serve as a scenic route. Similar to Coffee Rd, the design should be designed to function as a collector roadway rather than a regional bypass to 45 Hwy through downtown.

## Project (14) - River Road

Future development including the southern expansion of Thousand Oaks will provide much needed access to River Rd. Many additional development opportunities exist in unincorporated Platte County north of River Rd. River Rd should be improved prior to or concurrently with development to ensure it can adequately handle traffic volumes.

## Project (15) - River Road / Union Chapel triangle

Growth in the area will require improvements to the intersection of Union Chapel Rd and River Rd to address capacity and safety.

## Project (16) - Union Chapel Road

As sections of Union Chapel Rd are improved, storm water management, sight distance and access management improvements should be implemented. New development should be limited to access from intersecting public streets rather than private driveways along the corridor.

## Project (17) - FF Hwy / Mill Street

Work with MoDOT to stabilize FF Hwy along the bluff above the Missouri River Bottoms or identify an alternative alignment. FF Hwy's location and the geography of the hillside lend to slow failure of the existing improvement with visible signs of deterioration currently apparent. As a result it is imperative to maintain contingency plans for rerouting traffic should FF Hwy fail prior to improvement.

## Project (18) - Infill collector streets

The efficient function of the transportation system throughout Southern Platte County will depend greatly on the development of future collector streets. Limited ability to improve capacity on expressways and arterial streets will require greater dependence on local streets for local trips. New developments should be required to construct collector streets.

## Project (19) - Jones-Myer Road west of I-435

Reconfigure Jones-Myer Rd and the intersection with N Hwy west of I-435 in coordination with area development plans. Preliminary planning should be coordinated between Parkville, Platte County, MoDOT and area land owners to establish expectations and protect necessary right-of-way.

## Goals, Policies and Implementation Actions

**Goal:** Provide a balanced transportation network that provides transportation alternatives and reduces the number and length of automobile trips.

**Policy:** Provide a balanced interconnected street network that provides connectivity between neighborhoods, provides multiple travel routes, reduces the number and length of automobile trips and conserves energy through fewer and shorter automobile trips.

**Policy:** Use street and highway designs that respect local topography and are designed appropriately for the context in which they are located.

**Policy:** Provide alternative transportation options that reduce dependence upon the automobile.

### Implementation Actions:

- Require new street construction to equally serve the multi-modal needs of the vehicle, pedestrians, bicyclists and other alternative transportation options where appropriate.
- Require street connectivity with, within and between new development areas.
- Implement a funding source for the construction and/or improvement of major streets in the community.
- Develop a plan for long term maintenance and system improvements to the City's street network.
- Update the City development regulations to adopt street design standards, including alternative street designs types that minimize the amount of impervious surfaces, conserve open space and protect nature features and water quality.
- Work with MoDOT to ensure future improvements to 9 Highway and 45 Highway are constructed with a boulevard or context

sensitive character appropriate with the adjoining community, rather than to serve as high speed roadways.

- Partner with other jurisdictions to implement regional transportation services, including implementation of the MARC *SmartMoves* plan.
- Partner with other jurisdictions for regional transportation system management, including establishing uniform data collection methods, standardizing traffic study requirements and data reporting, coordinating mapping and enacting data sharing agreements.
- Implement options for alternative fuel and electric vehicle use in the City.

**Goal:** Provide enhanced infrastructure systems throughout Parkville.

**Policy:** Enhance the City's capital improvement program (CIP) to implement a balanced approach to infrastructure investments in existing and future development areas.

### Implementation Actions:

- Implement a dedicated funding mechanism for infrastructure improvements, including storm water management, streets and other utilities.
- Prepare and implement a comprehensive storm water management plan.
- Define street trees as part of the City's infrastructure to ensure adequate replacement of the trees. ■

